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# **ALLISON'S LODE RESERVES STATEMENT**

**for**

## **OCEANIA TASMANIA PTY LTD**

**25 January 2006**

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## **1. PURPOSE OF STATEMENT**

This statement of Ore Reserves for Allison's Lode zinc/lead/silver deposit has been prepared by The Minserve Group Pty Ltd (Minserve) at the request of Oceania Tasmania Pty Ltd. The purpose of this report is to provide a statement of the Ore Reserves compliant with the Australasian Code for the Reporting of Mineral Resources and Ore Reserves, 2004 Edition (JORC Code).

## **2. INTERPRETATION**

This statement of Ore Reserves has been carried out according to Minserve's interpretation of the JORC Code.

The resource interpretation used as the basis for Reserves has been compiled by Simon Tear of SMG Consultants Pty Ltd (SMGC).

Under the JORC Code, only Measured and Indicated Ore Resources can be considered for conversion to Ore Reserves after consideration of the "Modifying Factors" including mining, processing, economic, environmental, social, and government factors.

## **3. DISCLAIMER**

All information contained within this report has been prepared on the basis of present knowledge and assumptions. Information was largely provided by third parties and while Minserve does not believe the information used is incorrect or misrepresents, Minserve takes no responsibility for such information or data, or as to the accuracy or completeness thereof.

## **4. METHODOLOGY**

The methodology that was used in the preparation of the Reserves model comprised:

1. Validation of the resource model provided by SMGC.
2. Economic modelling and analysis of surface constraints, mining leases and other modifying factors to determine the ultimate mining limits.
3. Adjustment of the existing pit layout and mining sequence to conform to the ultimate mining limits.
4. Reserves generation and Reserves reporting.
5. Further assessment of the modifying factors to classify the Reserves.

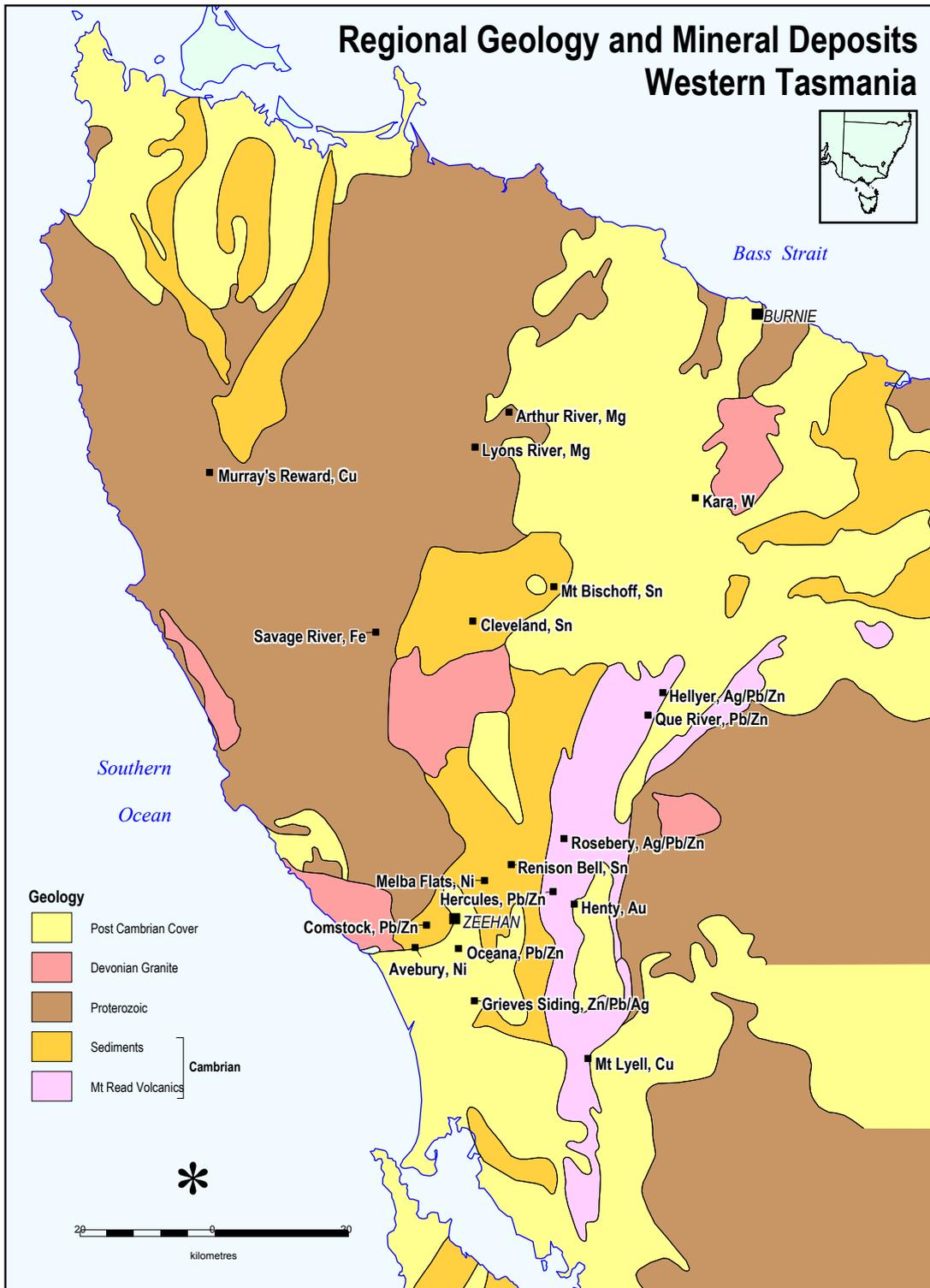
## **5. DESCRIPTION OF ORE DEPOSIT**

### **5.1 LOCATION OF ORE DEPOSIT**

The Allison's Lode zinc/lead/silver deposit is located 4km west of the town of Zeehan in Western Tasmania. It is part of Zeehan Zinc Limited's (ZZL) Comstock zinc project which comprises a series of zinc/lead veins in late Proterozoic sedimentary rocks. A location plan is shown in Figure 5.1.



**Figure 5.1**  
**Regional Location Plan**



## 5.2 STATUS OF TENURE

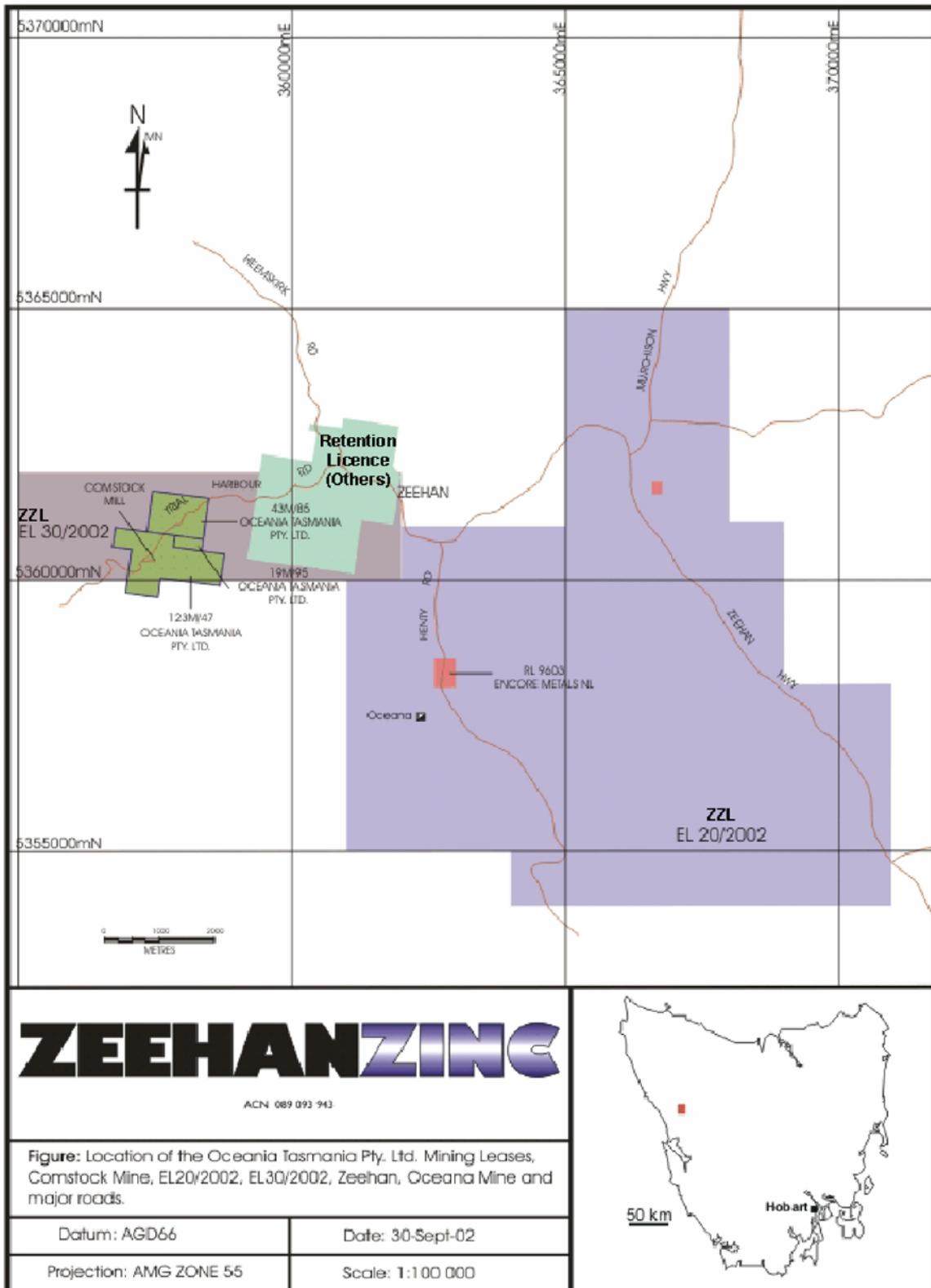
The Allison's Lode deposit lies within Mining Lease 123M/1947 held by Oceania Tasmania Pty Ltd as shown on the Mineral Resources Tasmania (MRT) Mine Lease map dated 10 October 2005, Figure 5.2.

- Mining Lease 123M/1947
- Area 146ha
- Lease Owner Oceania Tasmania Pty Ltd
- Locality Mclvor Hill
- Status Pending – Renewal letter submitted 29 September 2005.

Oceania Tasmania Pty Ltd is a fully owned subsidiary of Zeehan Zinc Limited an unlisted public company formed to mine and process mineral deposits located in the Zeehan region. ZZL holds three other mining leases (ML 43M/1985, ML9M/1995 and ML 9M/202) in the area and three nearby exploration licences EL 20/2002, EL 30/2002 and EL 18/2003. Two mining leases are under application with Mineral Resources Tasmania, they are 2M/2005 and 5M/2005.



**Figure 5.2  
Allison's Lode Mining Lease Location Plan**



### 5.3 DESCRIPTION OF ORE DEPOSIT

The geology of the West Coast of Tasmania comprises a complexly folded series of late Pre-Cambrian to Ordovician-aged sediments and volcanics intruded by Late Devonian-aged granites. Structurally there have been many overprints that have produced a complexly folded and faulted sequence of rocks.

The structure of the area is complicated by having flat lying beds being gently folded and disjointed by normal, wrench and possibly reverse faulting. The presence and effect of shallow dipping structures is not known and can only be inferred to exist at this point. In addition flexural slip on major bedding planes is an unknown quantity.

The Comstock Mineral field consists of a series of zinc/lead veins, mainly hosted by the Proterozoic Oonah Formation, which were the subject of substantial mining efforts in the late 19<sup>th</sup> Century.

The Avebury Nickel deposit lies a further 3km southwest of the Comstock area, whilst the recently suspended operations of the Renison Bell Tin Mine lie 16km to the northeast.

The Allison's Lode appears to be an axial planar, sub-vertical, 'fissure-fill' structure located in the anticlinal hinge of an upright, north to north-northwest striking open fold. Host lithologies comprise silicified dolomites, which can be friable when weathered, underlain by locally silicified carbonaceous phyllites, all belonging to the Upper Oonah Formation. Sporadic lineations infer a possible shallow plunge direction to the north.

The exposed lode comprises a north to north-northwest sulphide vein system/structure that may be up to 200m long by a maximum width of 20m, with the first 5m of overburden regarded as weathered, barren, sandy material. A series of parallel, semi-continuous sulphide zones consist of coarse grained sphalerite, galena and pyrite with a quartz (+calcite) gangue. Some individual sulphide veins are discontinuous and poddy in nature. The vein system appears to have a silicification envelope up to several metres away from the sulphide bodies, particularly evident in the carbonaceous phyllites. Trace levels of chalcopyrite are associated as inclusions within the sphalerite.

At the southern margin of the vein system a broadening of the ore structure may be associated with the Bendall's Fault, a west-northwest mineral-bearing structure that truncates the Allison's Lode structure and is parallel to the Balstrup Fault (Figure 5.3).

The geological interpretation by SMGC has defined the following geological units for Allison's Lode deposit. Solid shapes and surfaces of these units have been created in a Surpac model.

#### Ore Zone

The ore zone is a distinct mineralised zone based on geology and a combination of zinc and lead assay grades (notionally a 1% Zn cut-off); the mineral vein zone usually comprises massive sulphide in the form of coarse grained pyrite, sphalerite and galena. The mineralisation consists of variable amounts of sulphide sometimes as discrete massive pods, and at other times as a stockwork of veining.

Vugs were initially ignored when defining the ore shape. They have been interpreted as old mine workings that once contained mineralisation. Subsequently a mined-out area solid shape has been created from the aircore drilling to represent old workings.

Talc alteration has been identified in the drillholes but no solid volume was created for it due to the drillholes often beginning in the alteration zone. The talc forms on the immediate margin to the mineralised zone and locally within the ore zone.



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**Feeder Zone**

This solid comprises anomalous zinc zones (notional 0.5% Zn) representing low grade material and the vein in the underlying phyllite. It is a much narrower zone than that in the overlying dolomite.

**Carbonate Contact**

This DTM surface represents the lower contact of the flat-lying, ore-hosting, carbonate unit with the underlying phyllite unit. Undulations in this shape may indicate effects of later folding and/or faulting.

**Bendall's Fault**

This DTM surface was generated from its surface trace in the geological mapping draped over the post-mining topography and projected 500m downdip. This fault at the carbonate contact provides a southern boundary to the Allison's Lode mineralisation.

Mineralisation associated with the footwall of Bendall's Fault has not been modelled due to there being insufficient information. The mineralisation is thought to be related to Allison's Lode but has been rotated by sinistral shearing on Bendall's Fault (see Tear's Reports 2000a, 2000b, 2001 and 2005).

**Balstrup Fault**

The fault provides a northern boundary to the Allison's Lode mineralisation. The dimensions and style of the fault are likely to be of a complex fault zone rather than a discrete plane.

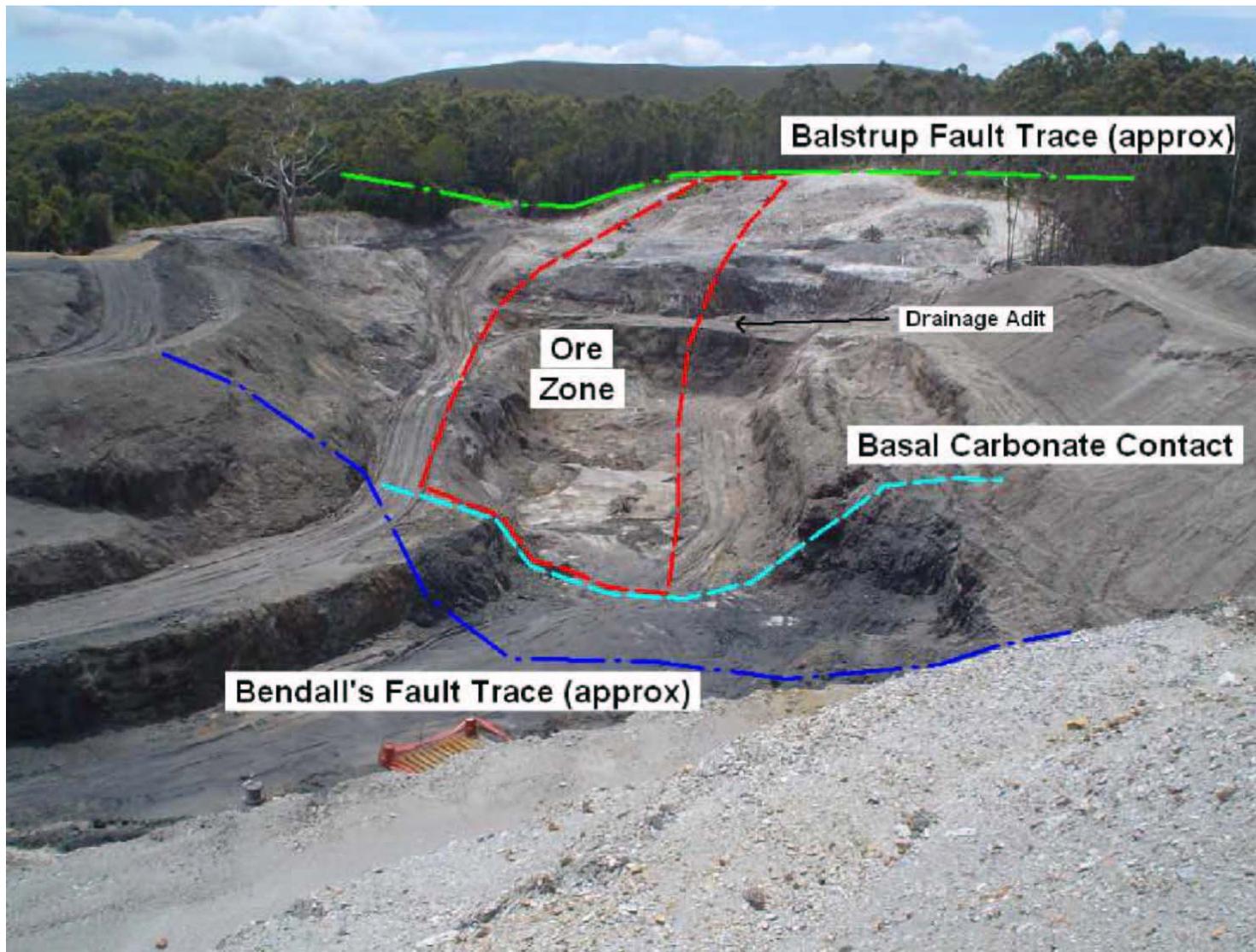
This DTM surface was generated from its interpreted surface trace in the geological mapping draped over the pre-mining topography and projected 1,000m downdip. There is diamond drillhole evidence for this fault projection to have validity, although this data has not yet been incorporated into the faults final interpretation.

**Weathering Zone**

This surface occurs in the northern half of Allison's Lode resource over an area relatively untouched by recent mining and indicated as barren from the recent RC drilling.



**Figure 5.3**  
**Photo Showing Allison's Lode and Major Features**



## 6. RESOURCES

The statement of Resources was prepared by SMGC in November 2005 in accordance with the JORC Code. The total in situ resource estimates are shown in Table 6.1.

**Table 6.1**  
**Allison's Lode JORC Resources Summary November 2005**

| Classification                                 | Volume (m <sup>3</sup> ) | Tonnes        | Zn %       | Pb %       | Ag ppm    |
|--|--------------------------|---------------|------------|------------|-----------|
| Measured                                       | 9,375                    | 32,028        | 5.86       | 1.46       | 29.0      |
| Indicated                                      | 18,734                   | 62,637        | 4.74       | 1.12       | 23.2      |
| Inferred                                       | 1,125                    | 3,563         | 2.25       | 0.67       | 17.1      |
| Mineralisation                                 | 0                        | 0             | 0.00       | 0.00       | 0.0       |
| Grand Total                                    | 29,234                   | 98,228        | 5.01       | 1.21       | 24.9      |
| <b>Values Corrected for Degree of Accuracy</b> | <b>29,200</b>            | <b>98,000</b> | <b>5.0</b> | <b>1.2</b> | <b>25</b> |

Based on the aircore results only at a 25m search radius, a top cut of a 30% Zn and a base density of 2.6g/cm<sup>3</sup>.

In addition to the work done by SMGC a resource estimate of ore stockpiled from the 2000/2001 trial mining has been prepared by Cotlco Pty Ltd in 2005.

The Cotlco Pty Ltd Resource Estimation and Classification Update 2005 report classified the stockpiled ore in the measured category as follows:

**Table 6.2**  
**Allison's Lode – Estimated Stockpile Resource (Cotlco)**

| Classification  | Tonnes | Zn % | Pb % | Ag % |
|-----------------|--------|------|------|------|
| <b>Measured</b> |        |      |      |      |
| Stockpiled Ore  | 3300   | 21.5 | 14.5 | 540  |



## 7. DESCRIPTION OF MINING METHOD

The small tonnage of the Allison's Lode deposit is well suited to contract mining using local contractors based around a small sized excavator and truck operation removing the ore and waste in 4m flitches from the top of the deposit downwards. Such an operation would be an extension of the most recent mining carried out by ZZL in 2000/2001.

There is a definite boundary between the mineralised ore zone and waste rock. The ore is harder and denser than the waste and dips sub-vertically. The waste is capable of being free-dug by a backhoe excavator without blasting and exploration drilling indicates that this is likely to occur for the full extent of the opencut. Ripping of waste by dozer can be used to assist the backhoe if needed. No drilling and blasting of waste or ore is anticipated. This allows waste to be excavated easily up to the boundary with the ore.

A selective mining approach is envisaged with the backhoe generally loading a truck on the bench below it, wherever possible, to take advantage of the greater productivity this affords the operation. Mining would generally commence at the southern end of the bench and advance to the north.

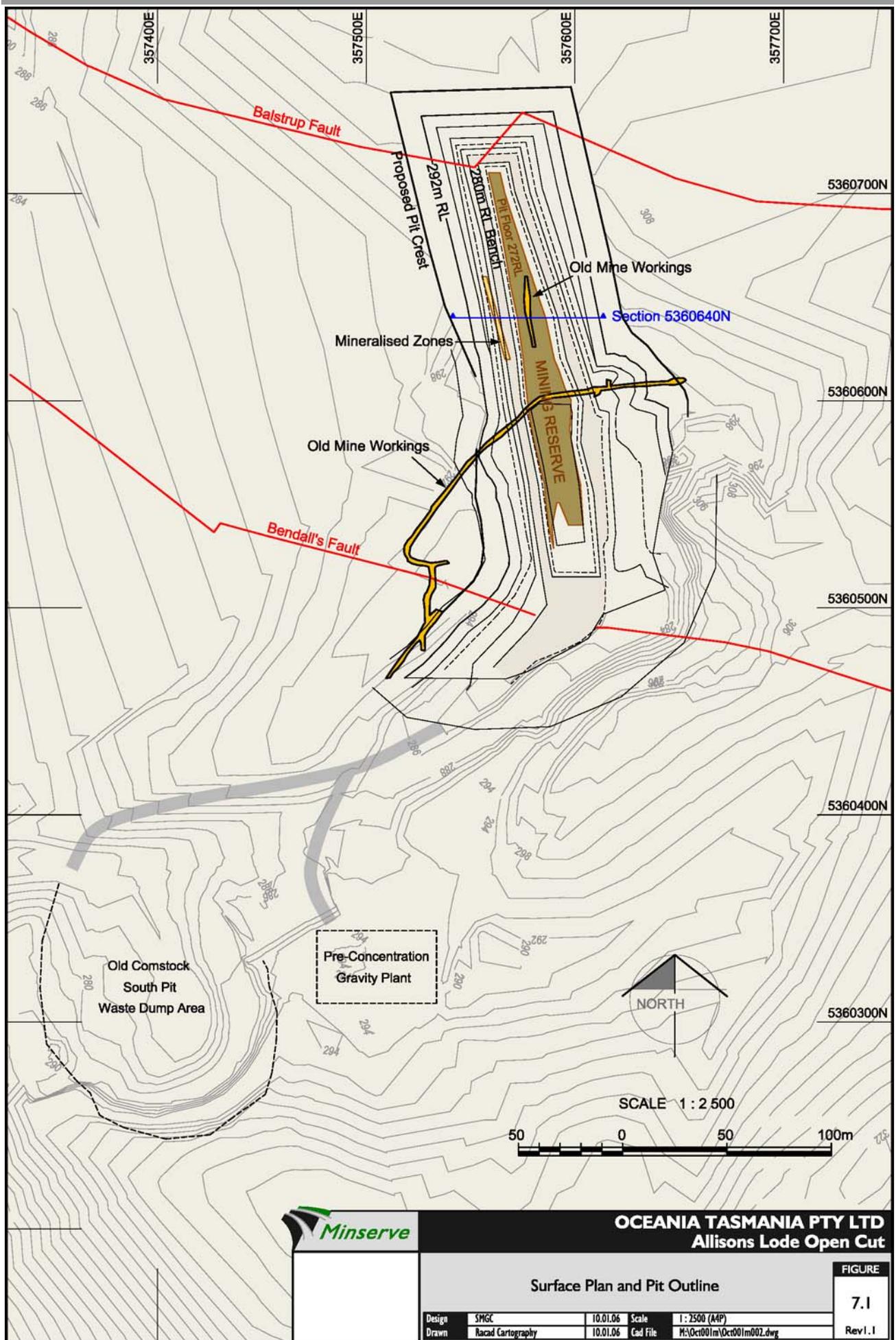
The steep dip of the ore allows grade control practice to be readily transferred down to the bench below. Mineralised areas with or without talc can be mined and stockpiled separately to allow suitable ore to bypass the pre-concentration gravity circuit wherever this is possible.

Waste mined will be trucked and used to backfill the South Comstock opencut, an average one-way haul of 0.5km from the mine has been allowed.

The opencut mining layout is shown in Figure 7.1.

A typical cross-section through the pit is shown in Figure 7.2.





**OCEANIA TASMANIA PTY LTD**  
**Allisons Lode Open Cut**

**Surface Plan and Pit Outline**

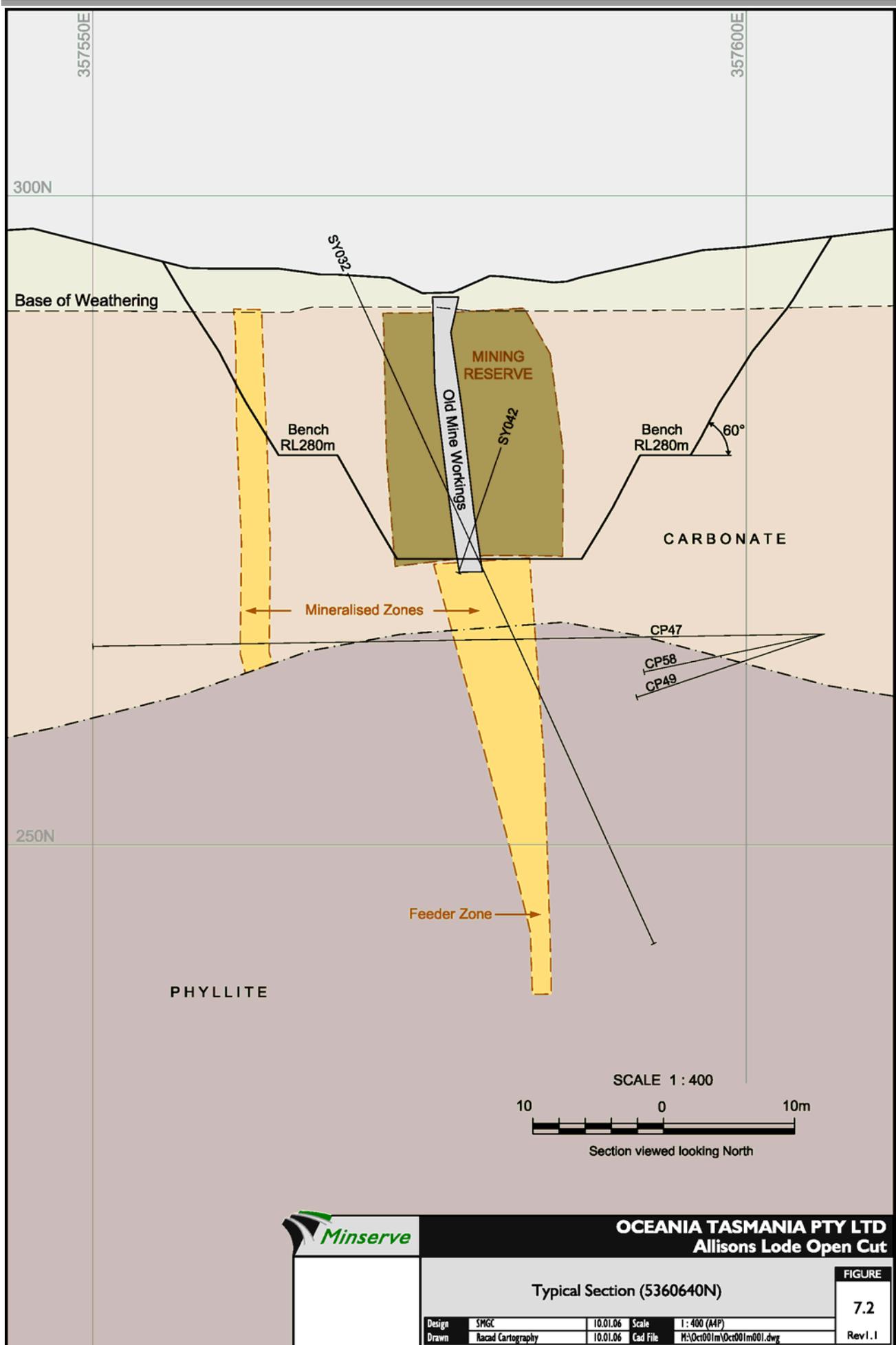
FIGURE

7.1

Rev 1.1

|        |                   |          |           |                           |
|--------|-------------------|----------|-----------|---------------------------|
| Design | SPMGC             | 10.01.06 | Scale     | 1 : 2500 (AAP)            |
| Drawn  | Racod Cartography | 10.01.06 | Grid File | M:\OCT001M\OCT001M002.dwg |





**OCEANIA TASMANIA PTY LTD**  
**Allisons Lode Open Cut**

Typical Section (5360640N)

FIGURE  
**7.2**

|        |                   |          |          |                           |
|--------|-------------------|----------|----------|---------------------------|
| Design | SPMGC             | 10.01.06 | Scale    | 1:400 (AAP)               |
| Drawn  | Racod Cartography | 10.01.06 | End File | M:\OCT001m\OCT001m001.dwg |

Rev 1.1



## 8. OPENCUT RESERVE CALCULATION

### 8.1 VALIDATION OF GEOLOGICAL MODEL

The following validations were made on the geological model by SMGC.

#### 8.1.1 Data Source and Verification

The northern boundary of the mineralisation is likely to be the Balstrup Fault, although this fault has not been exactly delineated in this northern area. The fault's current inferred position is based on a combination of topographic change and electromagnetic geophysics.

The southern boundary of the resource is determined by the base of the carbonate contact which outcrops at the south end of the pit.

For the SMGC 3D model the mineralisation shape is based on a notional 1% zinc cut-off outline blended with the geology, as defined in the drillholes and in the surface mapping, into a coherent geological shape.

The following data for the Allison's Lode were provided to SMGC:

- Drillhole coordinates and collar levels
- Lithological descriptions, downhole depths, base of oxidation and other geological data
- Ore sample analyses, and composite analyses
- Topography, surface features, cadastral boundaries, tenement boundaries.

Data has been checked for consistency, edited as required, then formatted for loading into the Surpac system.

Initially a 3D geological interpretation was produced as a mineralised solid volume based on the aircore drilling, channel sampling and trial pit mapping using Surpac software.

Subsequently SMGC have produced a block model report for the Allison's Lode using an inverse distance squared interpolation technique to generate block grades. This was considered the most suitable method based on the relatively low number (126) of aircore composite samples available.

Details of the modelling method are described in the JORC Resource Statement Report, November 2005. Bulk density and block grade estimation for the 10m x 10m x 10m block size with subcelling to 2.5m used are also discussed relative to the source data used for the model and the modelling scenarios evaluated. A 25m search radius was used and zinc grades were cut at 30% zinc.

Geological modelling and the generation of mining bench quantities for this study were performed by SMGC using Surpac software. The Allison's Zinc Resource block model was constructed using the following parameters:

1. Inside the defined ore shape.
2. Outside the interpreted cavity due to old workings.
3. Within the pit outline i.e. above the designed pit floor.
4. Below the current topographic surface.



## Block Model Report for the Ore

Constraints used:

1. INSIDE 3DM allisonoremodified 510.
2. NOT INSIDE 3DM allisonoldworkcav 1.
3. ABOVE DTM modified\_clipped\_pit 1.
4. NOT ABOVE DTM topo\_cleaned 509.

(Keep blocks partially in the constraint: False)

| Level (m)          | Volume (m <sup>3</sup> ) | Tonnes        | Zn (%)      | Pb (%)      | Ag (g/t or ppm) |
|--------------------|--------------------------|---------------|-------------|-------------|-----------------|
| 272.0-276.0        | 6,969                    | 24,011        | 4.80        | 1.04        | 22.1            |
| 276.0-280.0        | 8,188                    | 28,327        | 4.91        | 1.05        | 20.8            |
| 280.0-284.0        | 5,766                    | 20,102        | 5.60        | 1.55        | 30.9            |
| 284.0-288.0        | 4,603                    | 15,963        | 5.62        | 1.53        | 30.8            |
| 288.0-292.0        | 2,000                    | 6,799         | 5.12        | 1.30        | 28.8            |
| 292.0-296.0        | 116                      | 379           | 2.58        | 0.93        | 24.0            |
| <b>Grand Total</b> | <b>27,641</b>            | <b>95,581</b> | <b>5.15</b> | <b>1.25</b> | <b>25.5</b>     |

This is a slight reduction on the original resource, but does not account for any 'goodbye' cuts below the modelled pit floor. The tonnage figure is based on a calculated density field reflecting the levels of sulphide mineral contents within the ore, based on the aircore drilling (this averages to 3.3g/cm<sup>3</sup>).

Shown below are the waste figures from the modelling. There is no grade attached to the waste, although there is a possibility of additional veins to the west. These veins have not been included as drilling information is sparse.

## Block Model Report for the Waste

Constraints used:

1. NOT INSIDE 3DM allisonoremodified 510.
2. NOT INSIDE 3DM allisonoldworkcav 1.
3. NOT ABOVE DTM topo\_cleaned 509
4. ABOVE DTM modified\_clipped\_pit 1.

(Keep blocks partially in the constraint: False)

| Level (m)          | Volume (m <sup>3</sup> ) | Tonnes         |
|--------------------|--------------------------|----------------|
| 272.0-276.0        | 3,075                    | 7,995          |
| 276.0-280.0        | 4,863                    | 12,643         |
| 280.0-284.0        | 14,491                   | 37,676         |
| 284.0-288.0        | 14,503                   | 37,708         |
| 288.0-292.0        | 16,100                   | 41,860         |
| 292.0-296.0        | 16,088                   | 41,828         |
| 296.0-300.0        | 9,819                    | 25,529         |
| <b>Grand Total</b> | <b>78,938</b>            | <b>205,238</b> |

A density of 2.6g/cm<sup>3</sup> was used to calculate waste tonnes. This is an estimated figure based on the mineralogy, competency and consistency of the anticipated waste material. Waste is generally expected to be partially rotted silicified dolomite, possibly with small cavities.



Combining to two gives the following total tonnage:

### Block Model Report for combined Ore and Waste

Constraints used:

1. ABOVE DTM modified\_clipped\_pit 1.
2. NOT ABOVE DTM topo\_cleaned 509.

(Keep blocks partially in the constraint: False)

| Level (m)          | Volume (m <sup>3</sup> ) | Tonnes         |
|--------------------|--------------------------|----------------|
| 272.0-276.0        | 10,234                   | 29,066         |
| 276.0-280.0        | 13,328                   | 37,852         |
| 280.0-284.0        | 20,516                   | 58,264         |
| 284.0-288.0        | 19,381                   | 55,043         |
| 288.0-292.0        | 18,363                   | 52,150         |
| 292.0-296.0        | 16,234                   | 46,106         |
| 296.0-300.0        | 9,819                    | 27,885         |
| <b>Grand Total</b> | <b>107,875</b>           | <b>306,365</b> |

An averaged density of 2.84g/cm<sup>3</sup> was used to calculate tonnage. The variation in the volume between the addition of the ore+waste total and the combined total is due to the inclusion of the cavity (old mine workings) as removable material in the latter.

### Mining Block Reserve Model

The Allison's block model described above was used to produce the Allison's Mining Block Reserve shown in Table 8.1. This shows ore and waste quantities contained within the openpit pit shell developed on 4m flitch intervals down to flitch level 272m RL.

**Table 8.1**  
**Allison's Mining Block Reserve December 2005**

| Level<br>m         | Total Volume             |                | Waste                    |                | Ore Unmined              |               |             |             |                 |
|--------------------|--------------------------|----------------|--------------------------|----------------|--------------------------|---------------|-------------|-------------|-----------------|
|                    | Volume<br>m <sup>3</sup> | Tonnes<br>t    | Volume<br>m <sup>3</sup> | Tonnes<br>t    | Volume<br>m <sup>3</sup> | Tonnes<br>t   | Zn<br>(%)   | Pb<br>(%)   | Ag<br>g/t (ppm) |
| 296.0-300.0        | 9,819                    | 27,885         | 9,819                    | 25,529         |                          |               |             |             |                 |
| 292.0-296.0        | 16,234                   | 46,106         | 16,088                   | 41,828         | 116                      | 379           | 2.58        | 0.93        | 24              |
| 288.0-292.0        | 18,363                   | 52,150         | 16,100                   | 41,860         | 2000                     | 6799          | 5.12        | 1.3         | 28.8            |
| 284.0-288.0        | 19,381                   | 55,043         | 14,503                   | 37,708         | 4603                     | 15963         | 5.62        | 1.53        | 30.8            |
| 280.0-284.0        | 20,516                   | 58,264         | 14,491                   | 37,676         | 5766                     | 20102         | 5.6         | 1.55        | 30.9            |
| 276.0-280.0        | 13,328                   | 37,852         | 4,863                    | 12,643         | 8188                     | 28327         | 4.91        | 1.05        | 20.8            |
| 272.0-276.0        | 10,234                   | 29,066         | 3,075                    | 7,995          | 6969                     | 24011         | 4.8         | 1.04        | 22.1            |
| <b>Grand Total</b> | <b>107,875</b>           | <b>306,366</b> | <b>78,939</b>            | <b>205,239</b> | <b>27,642</b>            | <b>95,581</b> | <b>5.15</b> | <b>1.25</b> | <b>25.50</b>    |

The mining block reserve is based on the block model which has been calculated on a dry basis with no allowance for any inherent moisture content. The mining block reserve shows that the model estimated a volume of 1,294m<sup>3</sup> for ore previously mined from old underground workings (Table 8.1).

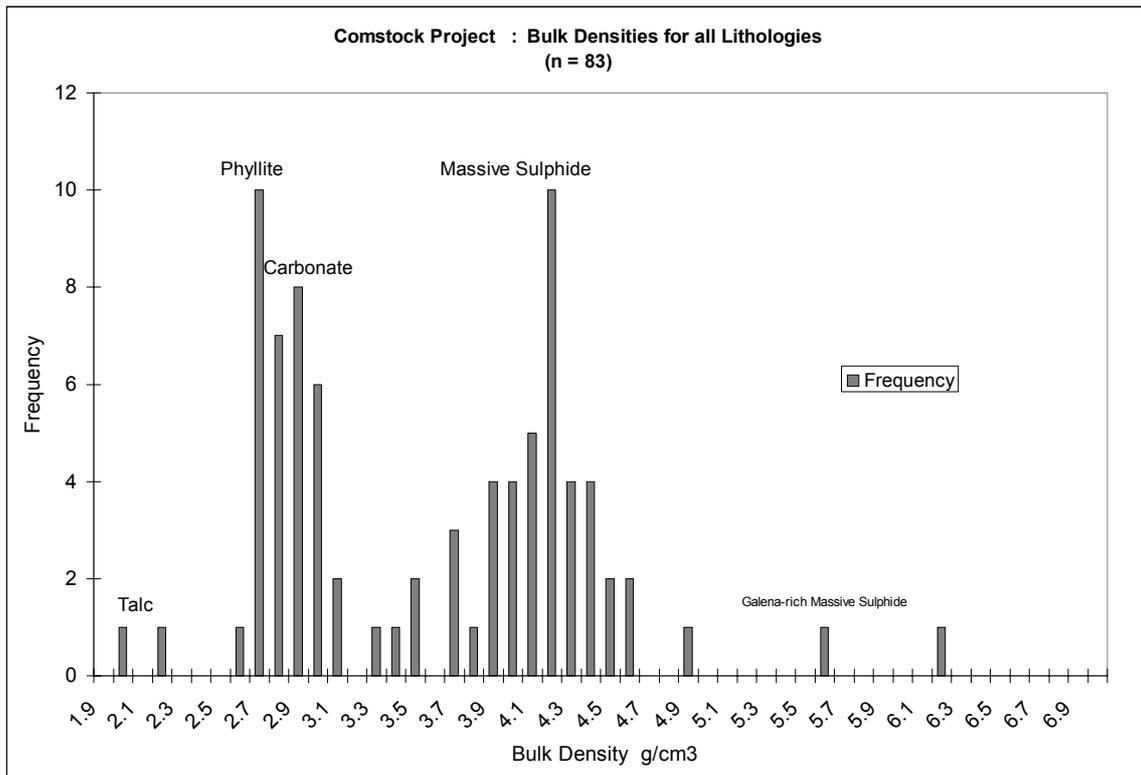
There will be some additional ore available to be taken as a "goodbye cut" below 272m RL. This has not been quantified or included in the mining block reserve.



## 8.1.2 Relative Density

A conservative default density of 3.3g/cm<sup>3</sup> was assigned to the bulk density attribute in the block model; this matches the average of a series of measured densities of various relevant rock types (Figure 8.1).

**Figure 8.1**  
**Allison Lode: Distribution of Measured Density Values**  
**(Archimedes Method)**



However it is possible to calculate a more accurate density for each aircore sample based on its zinc, lead and iron assays. The complex calculation utilises the assay value of each element to calculate the amount of corresponding sulphide in the assay sample, assuming each element value is attributable to the main sulphide species for that element. Thus the zinc assays are used to estimate the amount of sphalerite (at a density of 4) present within the sample, lead is used to estimate the galena content (density 7.2) and iron is used to estimate pyrite amounts (density 5). The remaining percentage of the sample is ascribed a base density of either 2.6g/cm<sup>3</sup> in the first instance or 2.75g/cm<sup>3</sup> in the second.

The formula used for the calculation of bulk density from assay results with remaining material having a base density of 2.6g/cm<sup>3</sup> is as follows:

$$\text{Bulk Density} = (\text{fe} * 0.1071) + (\text{pb} * 0.0855) + (\text{zn} * 0.0632) + ((100 - ((\text{fe} * 2.1413) + (\text{pb} * 1.1547) + (\text{zn} * 1.561))) * 0.026)$$

The density of that remaining material is difficult to ascertain, hence the two values as in some instances it will be vuggy quartz (about 2.3-2.6), powdery talc (2-2.6) or partially weathered carbonate (2.6-2.9) as well as possibly fresher carbonate (2.8-3.1).

## 8.2 IN SITU VOLUME TO ROM AND PRODUCT TONNAGES

Calculations performed to convert modelled in situ volumes into ROM ore tonnes are based on the mining factors shown in Table 8.2.

**Table 8.2**  
**Mining**

| Factor                                    | Units            | Value Used              |
|---|------------------|-------------------------|
| <b>Moisture Levels</b>                    |                  |                         |
| Ore in situ moisture                      | %                | Dry moisture free       |
| ROM ore moisture                          | %                | Not used/not calculated |
| Product ore trucked                       | %                | 9.0                     |
| <b>Waste Parameters</b>                   |                  |                         |
| Relative density                          | t/m <sup>3</sup> | 2.6                     |
| Added dilution grades                     | % and g/t        | Zn 0% Pb 0% Ag 0g/t     |
| <b>Ore Parameters</b>                     |                  |                         |
| Default RD                                | t/m <sup>3</sup> | 3.3                     |
| Calculated RD (see formula Section 8.1.2) | t/m <sup>3</sup> | Variable                |

### 8.2.1 Moisture Adjustment Factors

No in situ moisture has been used or assumed. Manipulations and calculations for mining have been done on a dry/dry basis for modelled in situ tonnes. ROM moisture has not been applied. The pre-concentrated plant product tonnes have been adjusted to 9% moisture for trucking purposes. Product sales tonnes and grades have been calculated on a dry/dry basis to be consistent with the assay data.

### 8.2.2 Ore Loss and Dilution Parameters

Because of the limited size of the resource emphasis is placed on maximising recovery rather than minimising dilution at the expense of losing ore. Table 8.3 details loss and dilution criteria applied based on the selective mining approach described.

**Table 8.3**  
**Loss and Dilution Criteria**

| Factor                          | Value               | Comment   |
|---------------------------------|---------------------|---|
| Loss at ore/waste interface     | 2%                  | Equivalent to 8cm loss at each boundary interface for an 8m ore zone and 13cm for a 13m zone. |
| Loss at flitch roof and floor   | 1%                  | General mining loss.  |
| Dilution at ore/waste interface | 3%                  | Equivalent to 12cm per boundary interface for 8m ore zone (19.5cm for a 13m zone).            |
| Grade of diluting waste         | 0%                  | Some grade value likely but unknown at this stage.  |
| Relative density diluting waste | 2.6t/m <sup>3</sup> |   |

### 8.2.3 Pre-Concentration Plant Yields

Advice from ZZL and their metallurgical consultant is that all ROM ore will be crushed onsite to 8mm and processed in the gravity pre-concentration plant which has a plant recovery of 85% of feed (dry/dry tonnes). Product moisture is assumed to be 9%.



### 8.3 DETERMINING MINING LIMITS

Mineralised ore and mineralised ore zones are defined geological occurrences usually with defined geological boundaries. The cut off grade for mineralised ore used is 1% zinc. This was used to determine the mining reserve ore limits. These limits were modelled in three dimensions to define the mining limits for the ore used in the study.

Volumes estimated from known previously mined areas have been removed from the 3D model of the ore.

The depth limit for mining has been taken as the 272m RL bench.

These have been used as the economic mining limits for the mining reserve.

#### 8.3.1 Mining Cost and Ore Sales Price Assumptions

Commodity prices have been based on London Metals Exchange prices as at 25 January 2006. These are:

- Zinc US\$2,269 per tonne
- Lead US\$1,409 per tonne
- Silver US\$9.54 per ounce.

The Australian dollar, US dollar exchange rate used is AUD = US\$0.75.

In Minserve's opinion the price assumptions and exchange rate used are reasonable

Contract mining costs were provided based on the last contract to mine a bulk sample of Allison's Lode ore and the ZZL Business Plans, 2003 and 2005 Contractor costs are based on the following costs per tonne of ROM ore mined for:

|                     |                |
|---------------------|----------------|
| Excavator           | \$4.68         |
| Grader              | \$0.23         |
| Roller              | \$0.23         |
| 3 x Truck (10cu.yd) | \$6.24         |
| Loader              | \$2.66         |
| <b>Total</b>        | <b>\$14.04</b> |

Mobilisation and demobilisation for all equipment \$10,000.

On this basis a contract mining cost of \$14.50 per ROM tonne of ore mined was used. Note that this equates to \$12.75 per bcm of material excavated which appears to be conservative.



Other non-contractor related site operating costs per tonne include:

|   |               |
|---|---------------|
| Site supervision, geology and grade control | \$3.25        |
| Office, administration and services         | \$1.50        |
| Insurances and leases                       | \$0.24        |
| <b>Total</b>                                | <b>\$4.99</b> |

Contractor operating costs for the pre-concentration gravity treatment plant are based on the following cost per tonne of ROM ore mined.

|                               |                |
|-------------------------------|----------------|
| Milling and processing labour | \$5.52         |
| Building hire                 | \$0.03         |
| Equipment hire                | \$0.76         |
| Reagents and consumable       | \$0.96         |
| Power                         | \$1.64         |
| Services                      | \$0.74         |
| Engineering and stores        | \$0.43         |
| <b>Total</b>                  | <b>\$10.08</b> |

Contract road haulage of mine gate product to Rosebery Mill, a 34km one way trip, has been estimated at \$0.12 per tonne per kilometre based on truck loading from the pre-concentrate product bin.

Corporate and Management costs of \$500,000 have been attributed to the project costs.

Royalties associated with the mining of the ore have been estimated at 5% of the value of the metal content at the point of sale.

In Minserve's opinion the costs used in the study, provided by ZZL, are generally considered to be reasonable to conservative when viewed as a cost per bcm of material mined. Milling and processing costs are considered to be reasonable.

### Capital Costs

All money spent on plant and equipment for ZZL and Oceania Tasmania on their involvement with the Comstock area prior to January 2006 has been treated as a sunk cost in line with the 2005 Business Plan.

The same Business Plan estimates the following capital cost expenditure to be required for the Allison's Lode opencut operation:

|   |                  |
|---|------------------|
| • Completion of the gravity treatment plant | \$400,000        |
| • Plant commissioning                       | \$200,000        |
| <b>Total</b>                                | <b>\$600,000</b> |

### 8.3.2 Economic Mining Limit

Quantities were generated for the 4m battered mining flitches within the opencut resource area. Pit limits were projected upwards from the 272m RL pit bottom using a 60° batter angle and incorporating a 4m wide catch bench at level 280m RL. This created the pit shell evaluated.

## 8.4 PIT LAYOUT

The reserve estimate is based on the opencut mine design shown in Figure 7.1.



### **8.4.1 Surface Constraints**

There are no known surface constraints that will affect mining.

A proposed road relocation to provide access to the nearby Avebury Nickel Mine has been mooted to pass close to the vicinity of the Alison's Lode opencut area. Any inappropriate location has a potential to affect the opencut area and potential future opencut mining prospects within the lease area.

### **8.4.2 Geotechnical Constraints and Hazards**

The planned operation is based on design criteria observed to work for the area. The key aspect is the ability to drain water from the pit area via the existing drainage adit which will remain in place for the duration of the opencut mining operations.

### **8.4.3 Geological Constraints and Hazards**

No geological constraints or hazards have been identified that might affect the resource estimates on which the reserves statement is based.

### **8.4.4 Environmental Issues**

The presence of pyrite in the ore and waste has the capacity to be potentially acid forming when mined and placed indiscriminately in waste dumps. The current plan encapsulates pyrite and other potentially acid forming materials in engineered waste dumps and tailings dams.

### **8.4.5 Social and Government Factors**

There are no known social or government issues identified that affect the Reserve estimate.

The original DPEMP was submitted for approval in 2001 and a permit was issued by DPIWE and West Coast Council in July 2001 to mine 200,000tpa, with gravity tails initially being disposed of at the South Comstock Pit. The Thomson & Brett proposal for co-disposal of mine waste and tailings at Swansea Dump was submitted for approval in 2002, and later revised in December 2003 after lease boundaries had been extended by 100m to increase capacity for three years production.

The approval process with DPIWE and Council is still in progress.

### **8.4.6 Operational Constraints and Hazards**

There have been no operational constraints identified that affect the Reserve estimate.



## 9. UNDERGROUND RESERVES

While there is potential for underground operations on a narrower ore zone extending below the Allison's Lode opencut pit bottom, there has been insufficient investigation into methods and costs to justify placing any of the underground resource into a Reserve status.

## 10. SUMMARY OF OPENCUT RESERVES

A summary of the Allison's Lode Reserves based on all the assumptions stated in this report is shown in Table 10.1. Reserves have been reported to two significant figures.

**Table 10.1**  
**Summary of Reserves**

| Source             | Class    | Volume (m3) | Tonnes        | Zn %        | Pb %        | Ag g/t       |
|--------------------|----------|-------------|---------------|-------------|-------------|--------------|
| Opencut to RL 272m | Probable | 27,642      | 95,581        | 5.15        | 1.25        | 25.50        |
| Stockpiled Ore     | Probable |             | 3,300         | 21.5        | 14.5        | 540.00       |
| <b>Total</b>       |          |             | <b>98,881</b> | <b>5.46</b> | <b>1.93</b> | <b>42.67</b> |

### 10.1 COMPARISON WITH PREVIOUS ESTIMATES

No previous JORC Code Ore Reserve Statement has been completed for Allison's Lode opencut ore resources.

## 11. STATEMENT OF COMPETENCE

Alwyn Hyde-Page is a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy with 35 years experiences and has the relevant experience in relation to the mineralisation being reported to qualify as a Competent Person as defined in the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code 2004 Edition)".



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