

ASX ANNOUNCEMENT

7 February 2012

CYCLONE ZIRCON PROJECT MAIDEN ORE RESERVE ESTIMATE

Diatreme Resources Limited is pleased to announce a **maiden ore reserve estimate** for the Cyclone Zircon project as part of the Prefeasibility Study ("PFS").

- **The Cyclone PFS pit design contains a Probable Ore Reserve of 97 million tonnes (Mt) at 2.5% heavy minerals ("HM"), including 0.79% Zircon, containing 2.4Mt HM, including 770kt of Zircon.**
- Ore Reserve is sufficient for 9.7 years of operations at the planned 10Mtpa mining rate.
- Life of mine strip ratio of 1.1:1, low clay content, and free dig nature of the ore will contribute to low operating cash costs.
- Further infill drilling and more detailed metallurgical testwork is planned for the area comprising the first two years of a mining operation.

Tony Fawdon, Diatreme's Executive Chairman and CEO, stated:

"The Company has reached a signal milestone with the release of a Maiden Ore Reserve estimate for the Cyclone Project together with the recently announced metallurgical testwork results which indicated high value Zircon and Titanium mineral products."

"The prefeasibility study is at the point wherein a market study currently underway will augment the Ore Reserve estimate with information on pricing for specific Cyclone mineral products. This market study will allow the calculation of the revenue stream from the proposed mining operation."

"Results of work to date have confirmed the Company's optimism in progressing the future development of the Cyclone Project."

"With forecast historic high mineral price levels and supply shortfalls in Zircon and Titanium feedstocks expected over the coming decade, it is clearly a good time for Diatreme to bring the Cyclone Project on stream."

Diatreme Resources is an Australian based diversified mineral explorer with significant projects in heavy mineral sands, copper, base metals and gold.

The Company owns the world class **Cyclone Zircon Deposit** in Western Australia, situated within the recognised **Eucla Basin province**, along with extensive areas of underexplored ground prospective for heavy mineral sands.

The Board and senior personnel exhibit wide experience, ranging through the exploration and development phases of resource management.

Australian Securities Exchange

Codes: DRX and DRXO

Securities

Ordinary shares (DRX):

354,597,423

Listed 15c options (30/09/13)(DRXO):

88,650,039

Board of Directors

Executive:

Tony Fawdon - Chairman/CEO

David Hall - Operations

Non-executive:

George White

Andrew Tsang

William Wang

Neil McIntyre

Joint Company Secretaries:

Leni Stanley

Tuan Do

Key Projects:

- Eucla Basin Cyclone Zircon Project
- Clermont Copper Project
- Anabama Copper Project
- Gilbert River Base Metals Project

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CYCLONE ZIRCON PROJECT - ORE RESERVE ESTIMATE

Diatreme Resources is pleased to announce a maiden Ore Reserve estimate for its flagship Cyclone HM Project following completion of pit designs as part of the Pre-Feasibility Study (“PFS”) on the Project.

The Ore Reserve estimation follows an extensive resource drilling program at Cyclone, metallurgical testwork and process flowsheet development by CPG Resources – Mineral Technologies (“CPG”), open pit design, and capital and operating cost estimates.

The design parameters for the open pit were developed based on simultaneous assessment of a number of economic and mining factors:

- A nominal 0.4% Zircon cut-off grade was applied. Lower grade material was included in areas with less overburden and where required to create a practical pit geometry for dozer trap mining.
- Areas with higher stripping ratios required a higher grade ore to be economic.
- The base of induration (within the Quaternary weathering profile) was used as the top of the ore zone to exclude indurated material (with poor quality HM) from mining.
- Low grade interburden material, which was not part of the Mineral Resource, was included in the pit design to allow mining of the Beach and Nearshore mineralisation in a single pass.
- Pit wall design used batter angles of 35° for ore and interburden (both unconsolidated sand) and 45° for overburden (variably indurated sandy loam).

The Cyclone JORC Resource (ASX announcement 23 January 2012) comprises 136Mt at an average grade of 2.3% HM. The Probable Ore Reserve has been estimated at 97Mt at an average grade of 2.5% HM, representing a 70% conversion rate. The pit design includes 109Mt of overburden and the total Life of Mine material movement is 206Mt at a strip ratio of 1.1:1. The strip ratio is considerably lower in the early years of the mine operation.

Extensive metallurgical testwork by CPG has confirmed that a standard grade Zircon product and two high TiO₂ content products can be produced from the Cyclone ore. The PFS Ore Reserve is forecast to produce 630kt of Zircon product, 90kt of HiTi87 titanium product and 440kt of HiTi67 titanium product.

Internal and independent market analyses have indicated that all three products will find market acceptance and be readily saleable.

A summary of the Ore Reserves and Mineral Resources are set out in **Table 1** below.

List of Attachments:

- Appendix 1:** Detailed breakdown of the Cyclone Reserves on a mineral strand basis.
- Appendix 2:** Annualised Ore Reserve mining schedule over a ten year mine life.
- Appendix 3:** Technical Details relating to the Cyclone Project Ore Reserve estimation.
- Figure 1:** Site layout map showing the mining pit outlines over a ten year mine life.
- Figures 2–6:** Representative cross sections through the Cyclone Deposit showing the mineral resource, ore reserve and mining pit outlines.

**TABLE 1: CYLONE RESOURCE & RESERVE ESTIMATE**

MINERAL RESOURCE													
Resource Category	HM cut-off %	Material Mt	HM %	HM Mt	Slime %	OS %	Head Grade						Zircon Kt
							Zircon %	Rutile %	Leuc %	HiTi %	Alt Ilm %	Si TiOx %	
MEASURED	1.0	107	2.4	2.63	4.1	5.6	0.77	0.08	0.17	0.52	0.26	0.55	830
INDICATED	1.0	29	1.6	0.47	3.6	6.1	0.44	0.06	0.06	0.50	0.11	0.31	130
TOTAL	1.0	136	2.3	3.10	4.0	5.7	0.70	0.08	0.14	0.51	0.23	0.50	950
Mineral Assemblage							31%	3%	6%	23%	10%	22%	
ORE RESERVE													
Reserve Category	Zircon cut-off %	Material Mt	HM %	HM Mt	Slime %	OS %	Head Grade						Zircon Kt
							Zircon %	Rutile %	Leuc %	HiTi %	Alt Ilm %	Si TiOx %	
PROBABLE	0.4	97	2.5	2.41	4.0	5.1	0.79	0.08	0.17	0.52	0.26	0.56	770
TOTAL	0.4	97	2.5	2.41	4.0	5.1	0.79	0.08	0.17	0.52	0.26	0.56	770
Mineral Assemblage							32%	3%	7%	21%	10%	23%	

Table Notes

- Rounding may generate differences in last decimal place
- A constant SG of 1.7 has been used to derive material tonnes
- Slime refers to material <53um
- OS refers to oversize material >2mm
- Mineral Assemblage derived from QEMSCAN® analysis
- Leucoxene (Leuc) – Ti-oxides containing 85 – 95% TiO₂, HiTi - Ti-oxides containing 70 - 85% TiO₂, Altered Ilmenite (Alt Ilm) - Ti-oxides containing <70% TiO₂, Si-bearing Ti-Oxide (Si TiOx) – Ti-oxides containing >10% silica rich Ti minerals.
- Resources are inclusive of Reserves

Please direct enquiries to:

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For further information on the Company visit www.diatreme.com.au

Competent Person Statements

The information in this report that relates to Mineral Resources is based on information compiled by Mr Ian Reudavey, who is a Member of the Australian Institute of Geoscientists, and a full time employee of Diatreme Resources Limited. Mr Reudavey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Reudavey consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on information compiled by Mr Phil McMurtrie, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr McMurtrie is a director of Tisana Pty Ltd, and is a consultant to Diatreme Resources Limited. Mr McMurtrie has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr McMurtrie consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

About Diatreme Resources

Diatreme Resources Limited (ASX code: DRX) is a diversified Australian mineral explorer with significant projects in heavy mineral sands, copper, base metals and gold. The Company is seeking to develop a mining operation at its Cyclone Zircon Project located within Western Australia.

About Zircon

Zircon is a mineral sand used in the production of ceramics, including sanitary ware, tiles and tableware. It is also used in refractories, TV glass and foundry applications. Zircon is the source material for zirconia and a range of chemicals used in high-tech applications, including fuel cells and abrasives. Zirconium metal is used in nuclear fuel rods, while zirconia is used in jewellery.



APPENDIX 1

Cyclone HM Project, Probable Ore Reserve Estimate by Strand

Strand	Overburden Mt	Strip Ratio	Ore Mt	HM %	Slimes %	OS %	Trash %	HM kt
West Strand	54.4	0.95	57.4	2.4	4.1	6	6	1,360
East Strand	50.3	1.33	37.9	2.7	3.8	4	6	1,020
Far East Strand	4.4	3.14	1.4	2.2	2.1	0	4	30
TOTAL Probable	109.2	1.13	96.8	2.5	3.9	5	6	2,410

Strand	Ore Mt	HM %	Zircon %	Rutile %	Leucox %	HiTi %	Alt Ilm %	Si TiOx %
West Strand	57.4	2.4	0.80	0.09	0.17	0.41	0.24	0.51
	Mineral Assemblage		34%	4%	7%	17%	10%	22%
East Strand	37.9	2.7	0.78	0.06	0.17	0.68	0.27	0.64
	Mineral Assemblage		29%	2%	6%	25%	10%	24%
Far East Strand	1.4	2.2	0.56	0.09	0.11	0.48	0.41	0.45
	Mineral Assemblage		26%	4%	5%	22%	19%	21%
TOTAL Probable	96.8	2.5	0.79	0.08	0.17	0.52	0.26	0.56
	Mineral Assemblage		32%	3%	7%	21%	10%	22%

Strand	Ore Mt	HM %	Zircon kt	Rutile kt	Leucox kt	HiTi kt	Alt Ilm kt	Si TiOx kt
West Strand	57.4	2.4	460	50	100	235	140	290
East Strand	37.9	2.7	295	25	65	255	105	245
Far East Strand	1.4	2.2	10	-	-	5	5	5
TOTAL Probable	96.8	2.5	770	80	170	500	250	540

- Rounding may generate differences in totals
- A constant SG of 1.7 has been used to derive material tonnes
- Slime refers to material <53um, OS refers to oversize material >2mm, Trash refers to material >710um & <2mm
- Mineral Assemblage derived from QEMSCAN® analysis
- Leucoxene (Leuc) – Ti-oxides containing 85 – 95% TiO₂, HiTi - Ti-oxides containing 70 - 85% TiO₂, Altered Ilmenite (Alt Ilm) - Ti-oxides containing <70% TiO₂, Si-bearing Ti-Oxide (Si TiOx) – Ti-oxides containing >10% silica rich Ti minerals.



APPENDIX 2

Annualised Ore Reserve

Year	Overburden Mm ³	Strip Ratio	Ore Mt	HM %	HM kt	Zircon kt	Rutile kt	Leucos kt	HiTi kt	Alt Ilm kt	Si TiOx kt
1	4.6	0.78	10.0	2.5	250	90	10	15	45	25	55
2	4.6	0.79	10.0	2.7	270	85	10	20	55	30	55
3	5.7	0.97	10.0	2.6	255	85	10	20	45	25	55
4	8.4	1.42	10.0	2.0	205	75	10	15	25	15	50
5	9.6	1.63	10.0	2.1	210	75	10	20	35	20	45
6	7.1	1.20	10.0	2.7	270	75	5	15	65	25	75
7	7.8	1.33	10.0	2.8	280	80	5	15	80	30	60
8	8.8	1.49	10.0	2.9	290	80	5	20	80	30	70
9	5.3	0.90	10.0	2.3	230	75	10	15	45	30	45
10*	2.4	0.59	6.8	2.3	155	45	5	10	30	20	35
TOTAL	64.2	1.13	96.8	2.5	2410	770	80	170	500	250	540

* 8 months mining in Year 10

Rounding may generate differences in totals

Overburden material reported as volume

Mineral tonnages reflect contained mineral within mined ore, not product tonnes



APPENDIX 3

Technical Details

INTRODUCTION

A preliminary mine plan has been developed for the Cyclone Prefeasibility Study (“PFS”). Capital and operating costs associated with the mine plan, mineral processing, infrastructure, logistics, personnel, permitting, royalties, and corporate overheads have been included in the PFS financial studies. Studies to date have concluded that the Cyclone Deposit could be developed as a viable mining operation. Market studies have provided forecast product pricing for revenue estimates. Costs for water supply to the mine and finalising the transport route are the risks with the greatest potential impact on the financial results.

MINING

The area planned to be mined is lightly vegetated and diesel powered earthmoving equipment will be used to clear the vegetation prior to mining. Bulldozers will then push topsoil into stockpiles which will be loaded into trucks by an excavator for transport from the mining area to the rehabilitation area. Overburden will be removed by excavator and trucks to expose the high grade ore zone for mining. The average overburden to ore ratio is 1.13 to 1 and the equipment selected has the capability for excavating the expected zones of indurated overburden.

A bulldozer and dozer trap method will be used to mine the ore. There will be two separate 650 tonnes per hour (tph) mining units at different face locations to ensure blending of higher and lower grade ore to produce a controlled grade to the Wet Concentrator Plant (“WCP”). Bulldozers will push ore for a distance up to 100m into the traps which will convey the ore at a consistent feed rate to a screener and slurry bin. The screen will remove coarse particles larger than 3mm from the ore and water will be mixed with the finer particles to form a slurry. Slurry pumps will pump the screened ore from the slurry bin to a surge bin at the WCP. The mining rate will be 1,300 tph for 7,700 hours per year giving an annual mining rate of 10 million tonnes.

The water supply for the project has not been finalised and hydrogeological studies are continuing to evaluate alternatives. Water supply for the project is expected to be sourced from a deep aquifer in the Officer Basin, a large sedimentary basin underlying the project area. A high quality aquifer, known to exist in two test wells drilled by another company 80km to the east of Cyclone, is expected to extend westward beneath Cyclone. A reliable supply of 250 litres per second from bores will be required for the mine, supporting infrastructure, and mine village. The Ore Reserve estimation procedure has identified water supply as a risk which will not be adequately mitigated until a water bore is drilled and tested.

HEAVY MINERAL CONCENTRATION

The WCP has been designed by CPG - Mineral Technologies (“CPG”) based on metallurgical testwork completed on a seven (7) tonne bulk sample. The bulk sample was collected from holes drilled across the entire Ore Reserve to produce a representative sample suitable for PFS quality process design. The WCP will be located on the western side of the mine and one kilometre north of the initial mining area. This WCP location will be fixed for the life of the mine and has been selected to ensure the pumping distances for both feed and tailings are not excessive. Tailings storage facilities will be located north and south of the WCP to provide short tailings pumping distances during the early years of the mine. The WCP process will be a totally wet slurry process and will include screening and several stages of gravity separation including spirals, classifier, and shaking tables to concentrate the valuable heavy minerals.

The majority of silica minerals, low grade titanium minerals, and trash minerals will be rejected to tailings from the WCP. A high grade mineral concentrate (98% HM) will be produced containing zircon and valuable titanium minerals. Metallurgical testwork has demonstrated good recovery of zircon in a conventional gravity separation process. The average rate of HM concentrate (HMC) production from the WCP is estimated to be 25 tph.



The sample used for flowsheet development testwork did not need to be deslimed due to the low level of slimes in the orebody. The low grade non-valuable titanium minerals were not recovered and generally reported to the tailings. These minerals are not included as products in this evaluation but do have potential for recovery if they can be demonstrated to show economic potential in the future. The ore contains approximately 4% slimes which is relatively low and provides confidence that tailings management will be a conventional procedure. A thickener has been included in the process for water conservation and tailings control. Normal rehabilitation procedures will be applied to a stable sand tailings surface.

TRANSPORT

The WCP will produce a moist HM concentrate that will be loaded into trucks for transport by road to an existing rail siding on the Trans Australian Rail Line. The mine and WCP will be located 220km north of the rail line and current planning assumes a road licence can be obtained for the preferred route through a nature reserve. Contingency planning has identified two alternative routes including a longer route around the nature reserve.

The trucks will dump the concentrate on a stockpile at the siding and a front end loader will load the concentrate into containers for rail transport. A rail service provider has provided budget pricing for several options to transport the concentrate in containers or in bulk to ports in WA and SA. The current preferred option is rail transport in containers from Forrest to Port Adelaide.

MINERAL SEPARATION PROCESS

A Mineral Separation Plant ("MSP") will be constructed in Australia or China close to an existing port. CPG has designed the MSP from testwork on the HM concentrate sample that was produced during testwork for development of the WCP flowsheet. The MSP includes a Hot Acid Leach ("HAL") process to clean surface coatings from the non-conductor mineral grains for improved mineral separation and product quality.

Electrostatic and magnetic separation processes were used to produce a HiTi87 product (87% TiO₂) and a HiTi67 product (67% TiO₂). The non-conductor stream from the feed was subjected to HAL treatment, wet gravity separation, electrostatic and magnetic separation to produce a Zircon product.

MINERAL PRODUCTION

The metallurgical testwork reports by CPG provide estimates for recovery of minerals from the bulk sample to the three mineral products. The production estimate for zircon is obtained by applying a recovery factor to the zircon reserve, and production estimates for the two HiTi products use recovery factors applied to several titanium minerals in the reserve as shown in the following table.

PRODUCTS	ORE RESERVE MINERALS – Recovery Factor %					
	Zircon	Rutile	Leucoxene	HiTi	Altered Ilmenite	Si TiOx
Zircon	81.8	-	-	-	-	-
HiTi87	-	66.8	13.4	1.0	-	2.6
HiTi67	-	-	15.0	19.4	61.7	30.7

Annual mineral production estimates for the project include 65,000 tonnes of zircon, 10,000 tonnes of HiTi 87, and 46,000 tonnes of HiTi67. Market studies have provided estimated values for these mineral products for use in financial modelling.

FINANCIAL EVALUATION

Scoping and PFS studies to date have developed capital and operating cost estimates for financial modelling. CPG has completed PFS quality design for the WCP and MSP including capital and operating cost estimates for these two processing plants to an accuracy of +/-25%. Mining and transportation costs are based on contractor budget estimates. Other less significant costs are based on vendor estimates. Market studies and discussions with mineral product end users have provided forecast product pricing for revenue estimates.

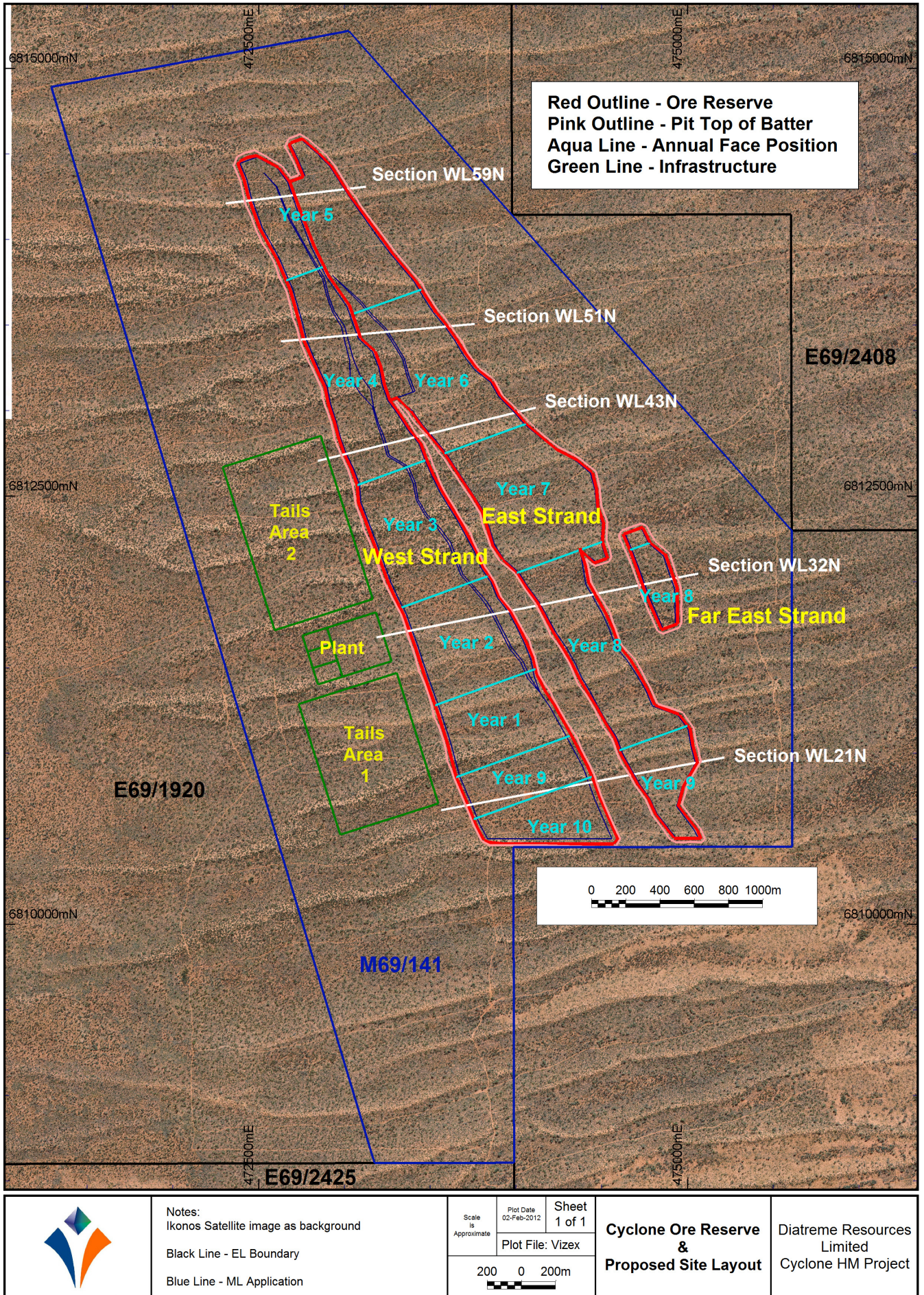


Figure 1: Location Map Cyclone Ore Reserve

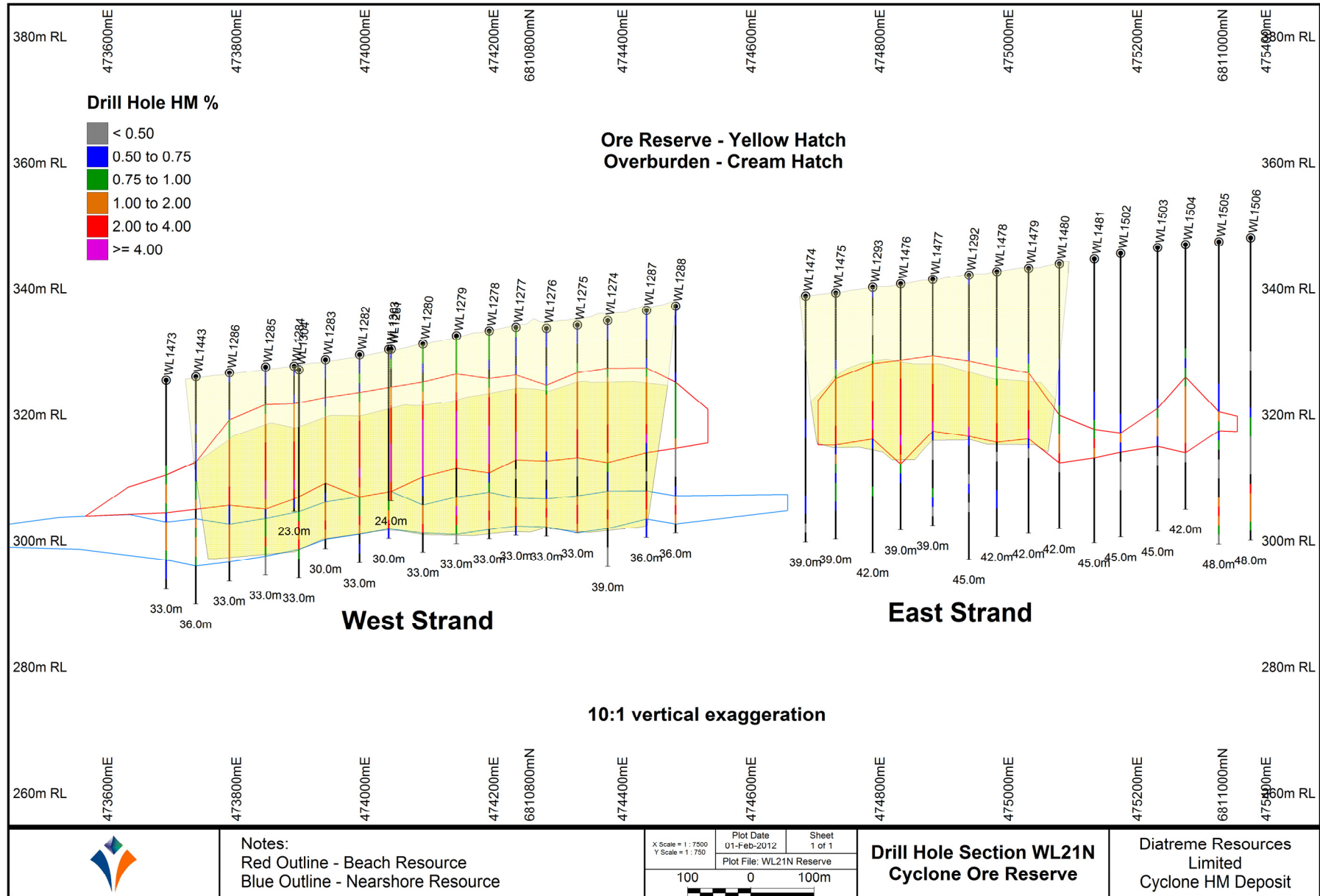


Figure 2: Drill Hole Section WL21N – Cyclone Ore Reserve

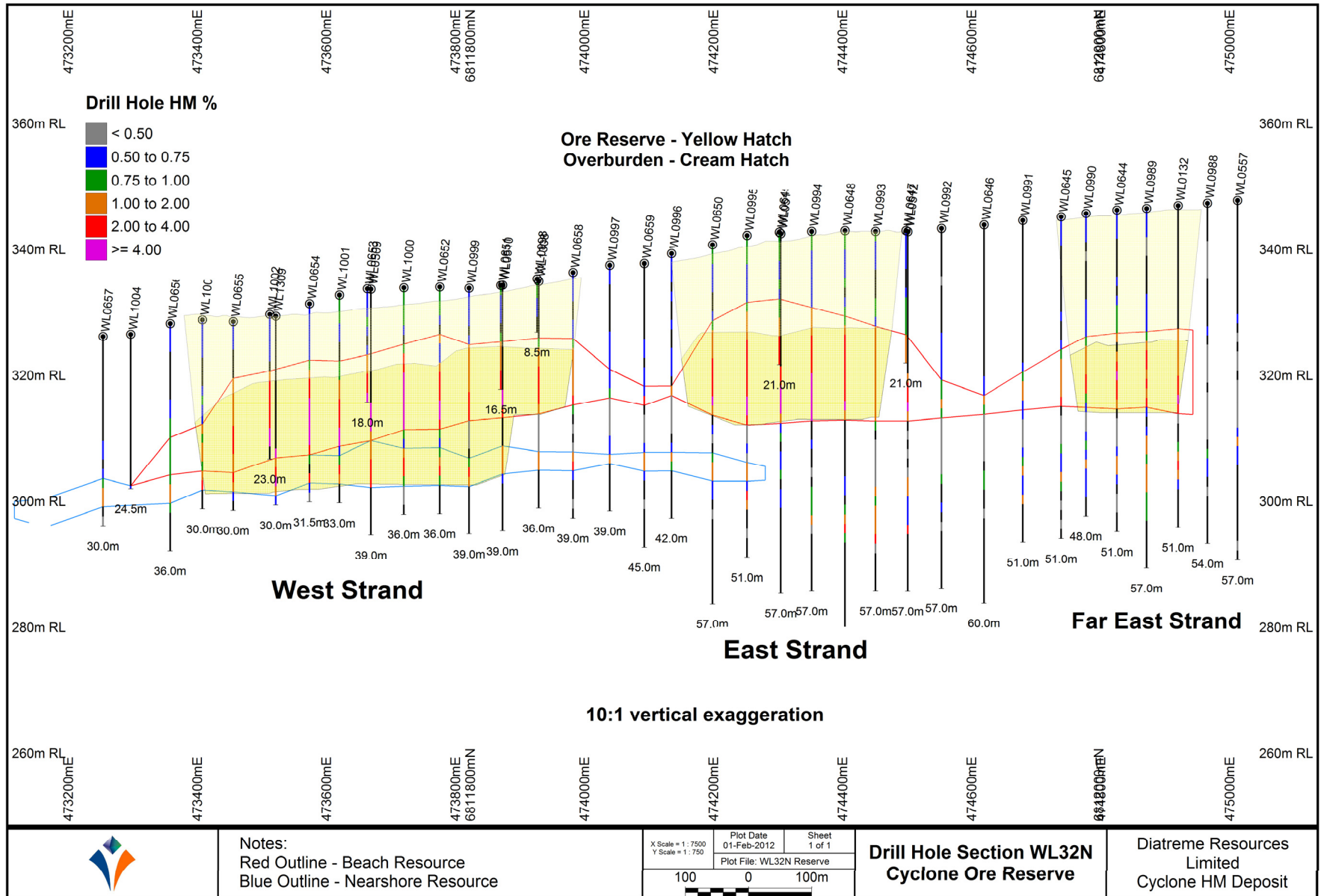


Figure 3: Drill Hole Section WL32N – Cyclone Ore Reserve

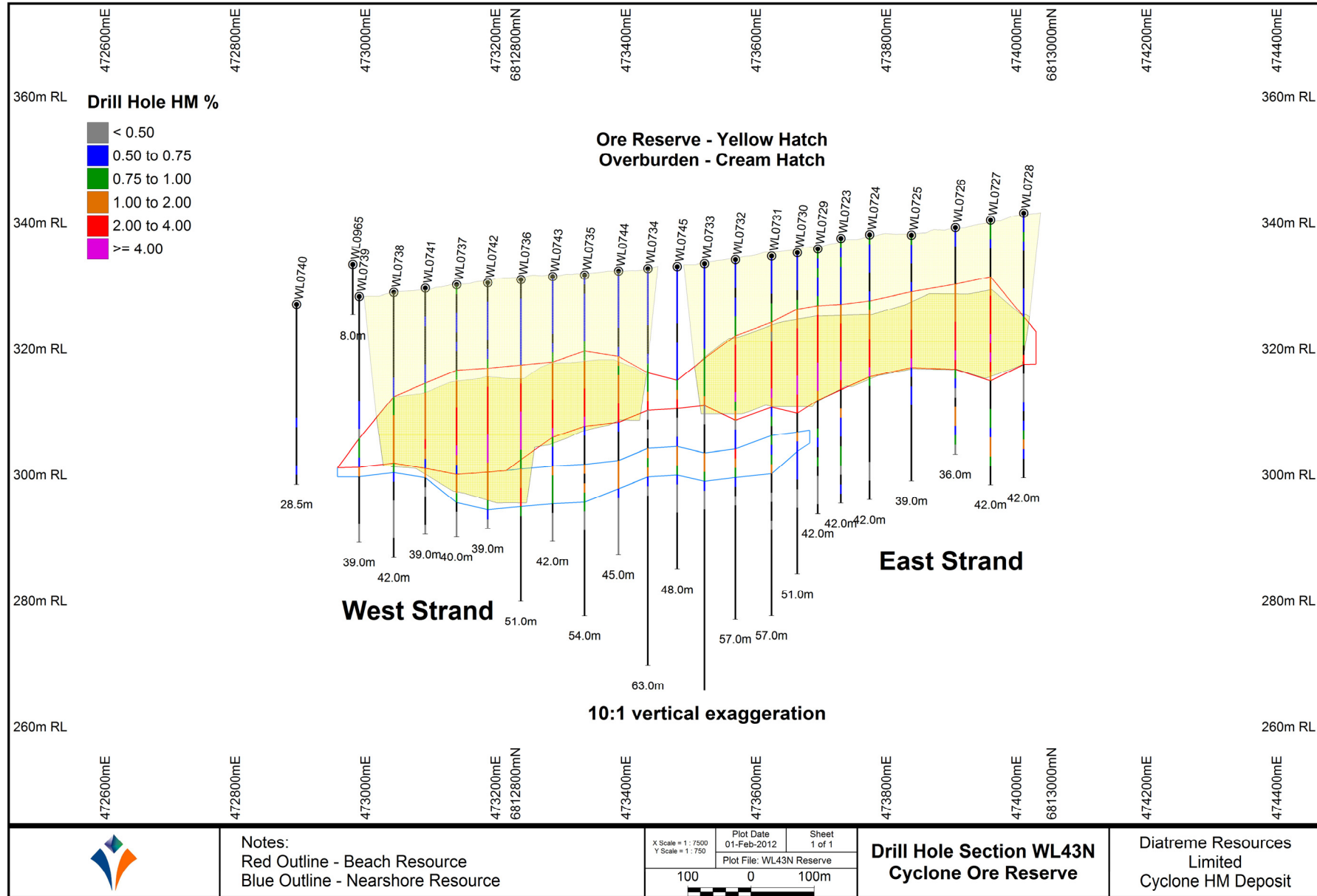


Figure 4: Drill Hole Section WL43N – Cyclone Ore Reserve

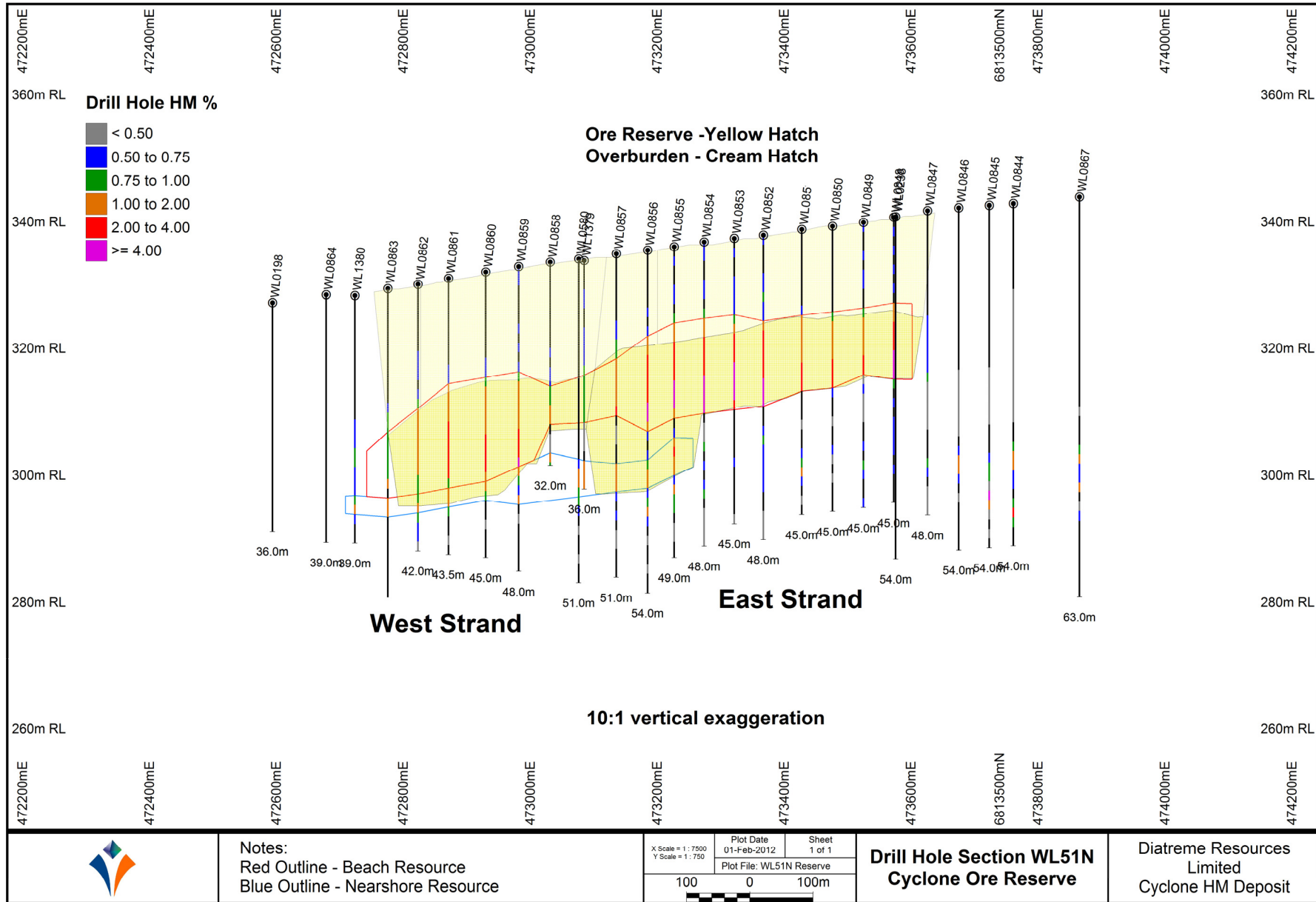


Figure 5: Drill Hole Section WL51N – Cyclone Ore Reserve

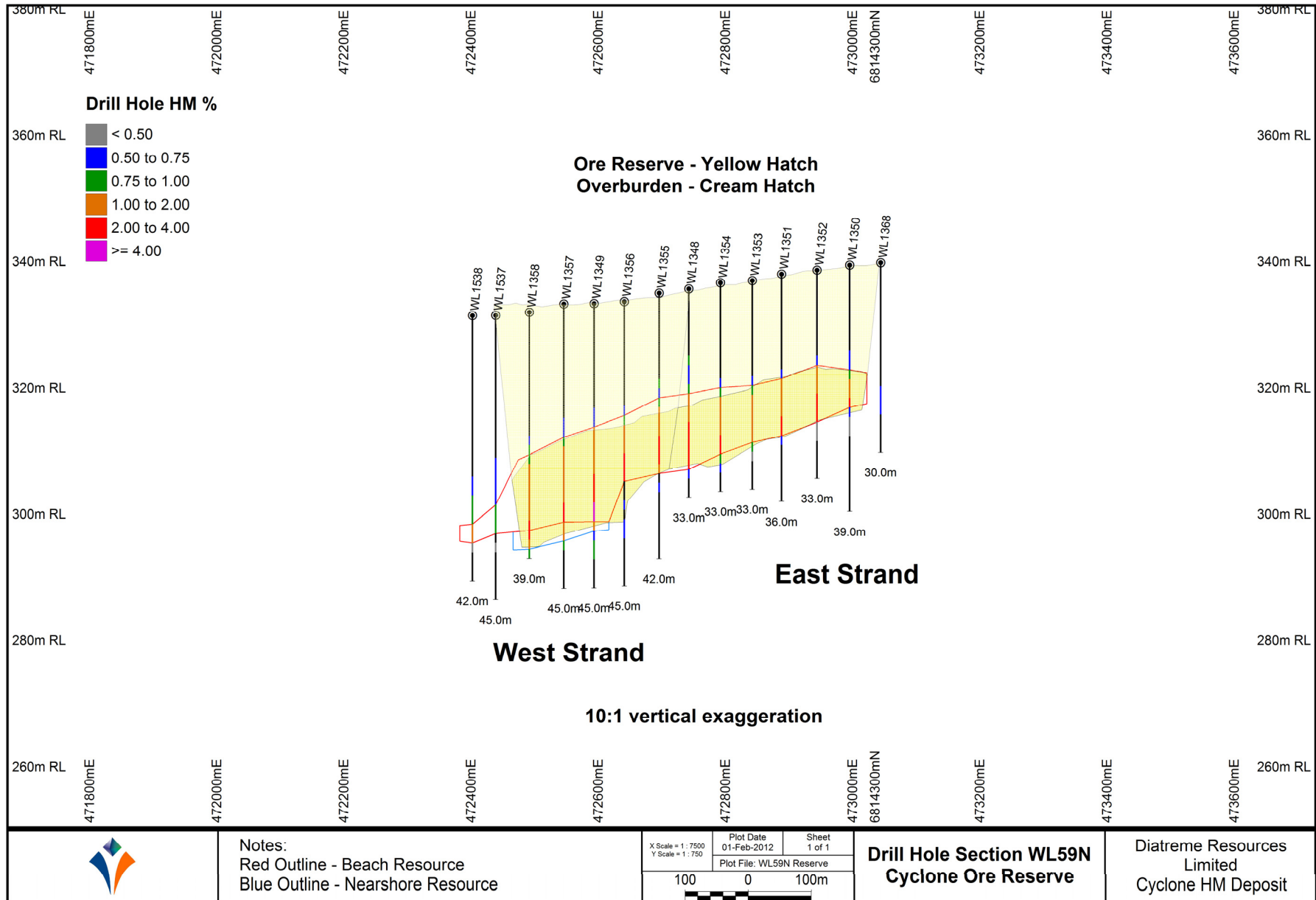


Figure 6: Drill Hole Section WL59N – Cyclone Ore Reserve