



NORTHERN MANGANESE LIMITED
ASX CODE: NTM November 2016

Redcliffe Gold Project

Presented by Rodney Foster, CEO



- Substantial tenure over Mertondale Shear Zone: A prolific gold bearing structure.
- Initial Resource estimates established, open.
- Significant upside for additional discoveries.



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Competent Persons Statement

The information in this presentation relates to Exploration Results is based on the information reviewed by Rodney Foster who is a member of the Australasian Institute of Mining and Metallurgy, Rodney Foster is a Director and full time employee of the Company. He has sufficient experience which is relevant to the mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a competent Person as defined in the 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Rodney Foster consents to the inclusion in this report of the matters based on his information in the form and context in which it appears. This information with respect to Resources was prepared and first disclosed under JORC Code 2004. It has not been updated since to comply with JORC 2012 on the basis that the information has not materially changes since it was last reported. A process of review is underway.

The Objective

To unlock the potential within a gold-endowed structure, known to contain significant gold occurrences, still only lightly explored.



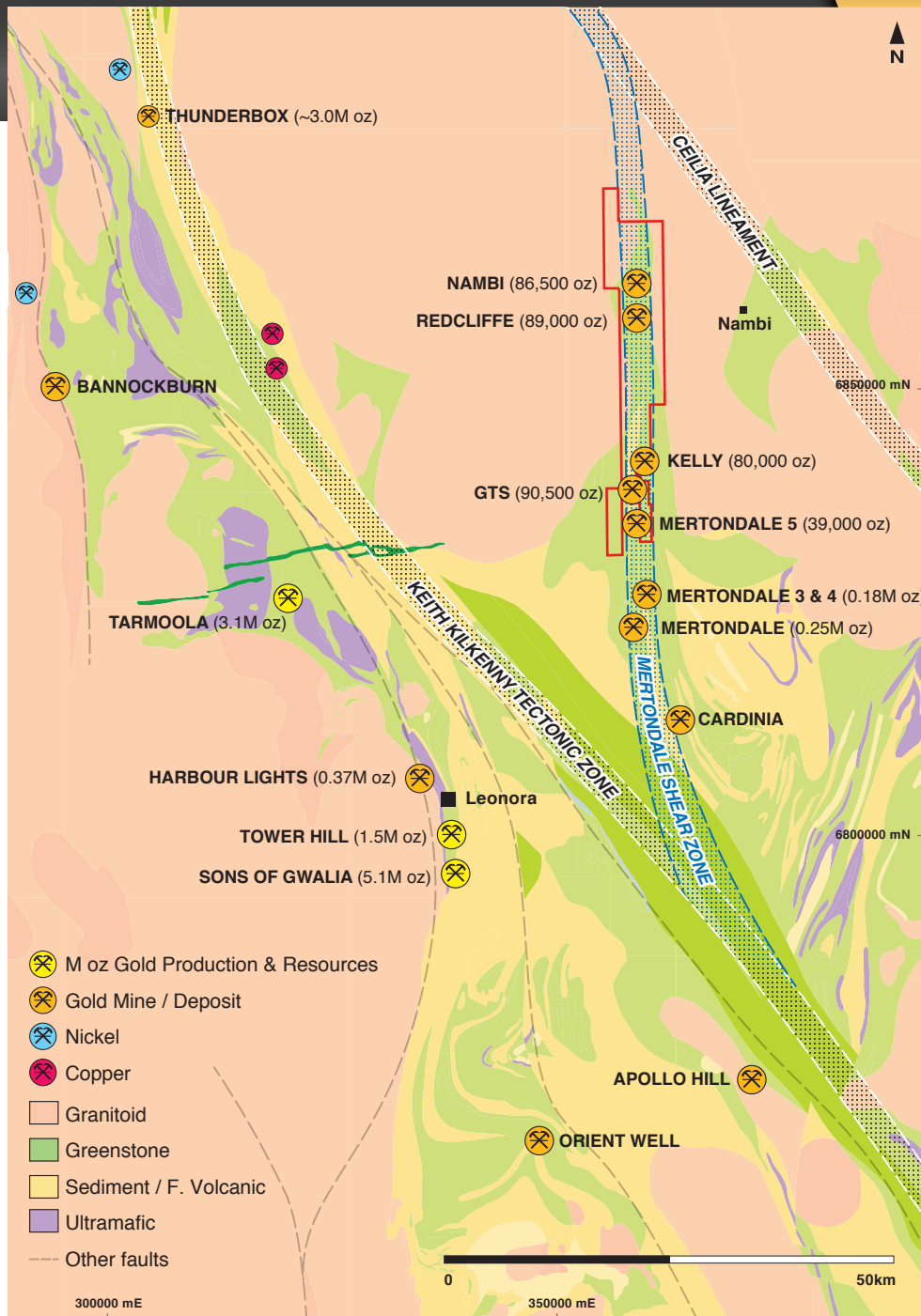
Regional Overview

Redcliffe Gold Project

- Located near Leonora, 240km north of Kalgoorlie; the heart of Western Australia's goldfields.
- Excellent existing regional infrastructure.
- Project overlies Mertondale Shear Zone; a regional deep seated structure, important focus for gold bearing fluids.

Gold endowment

Regional: **+15Moz**



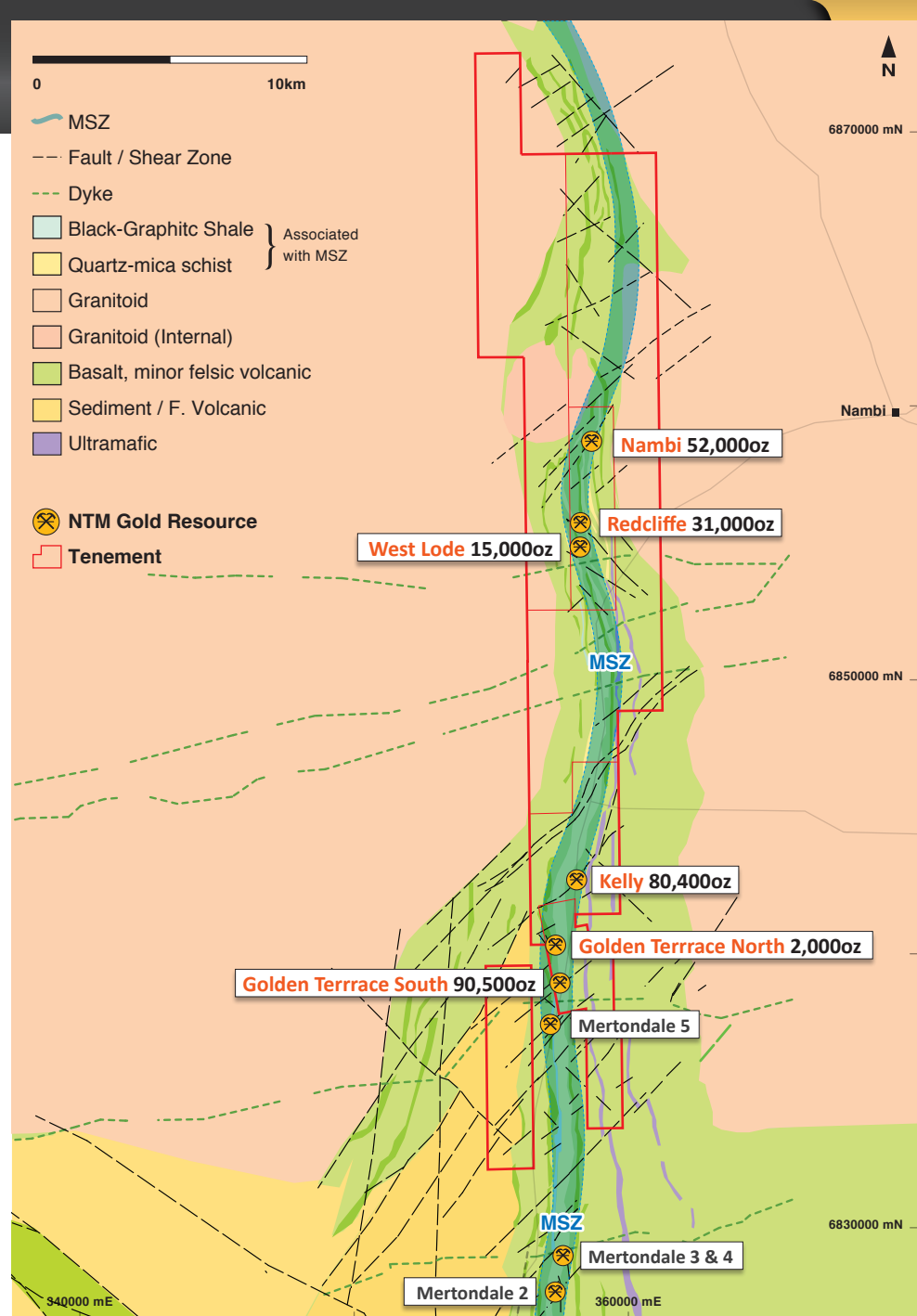
Project Overview

Resources

- Numerous deposits along the Mertondale Shear Zone.
- High Graded pits had ore transported off site in the 1990's.
- Total project area of 160km² – resources within granted mining licences.
- Current resources open along strike and at depth, still growing.

Gold past & present endowment

MSZ: **+1.4Moz**



Project Overview

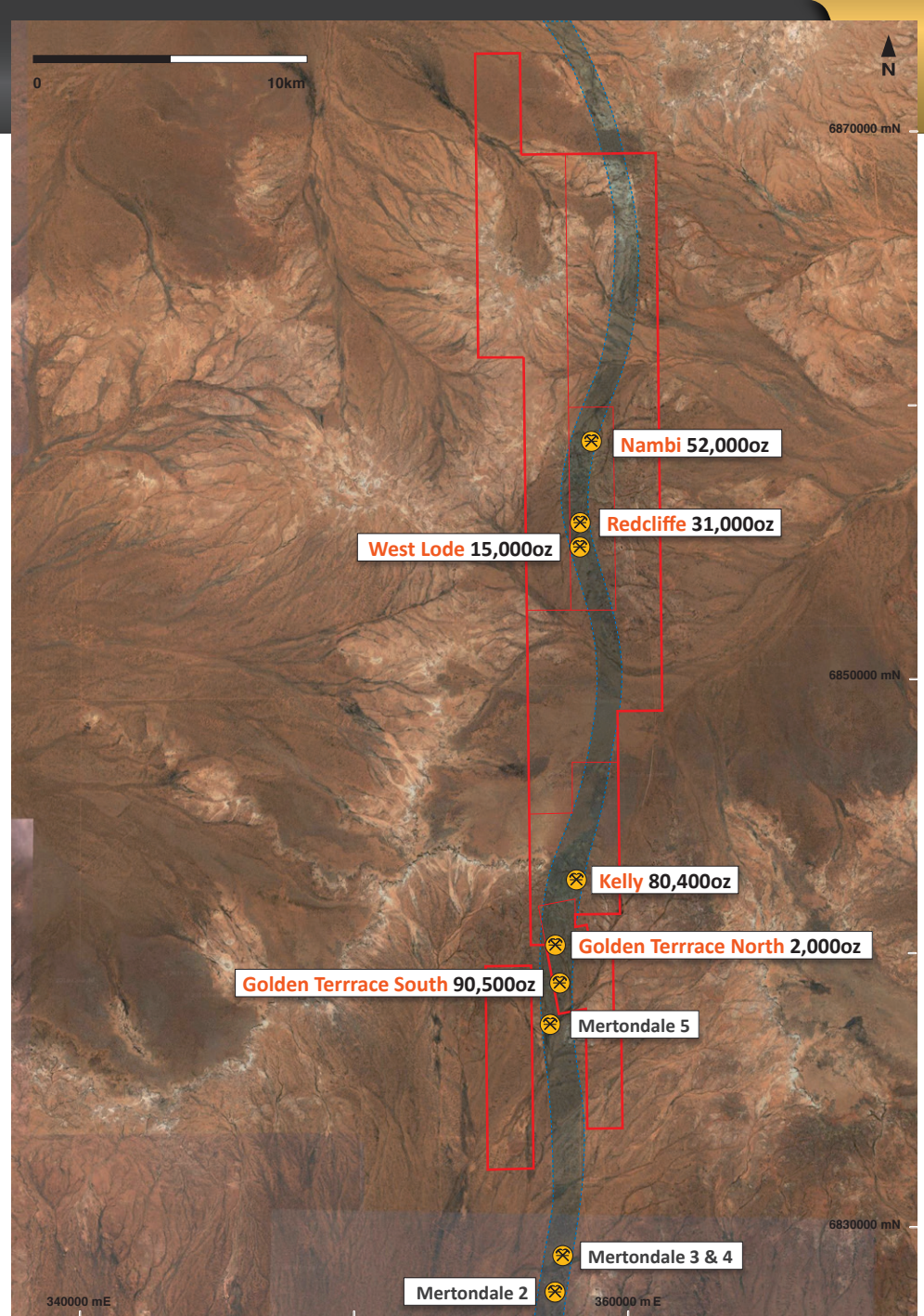
Resources & Estimates*

- Previous gold production within Project:
90,500oz (Nambi & Redcliffe)
– shallow open pits
- Current gold resource estimates:
278,000oz (5.48 Mt @ 1.57g/t)
Indicated: 84,000oz
(0.969 Mt @ 2.70g/t)
Inferred: 193,000oz
(4.512 Mt @ 1.33 g/t)

Gold past & present endowment

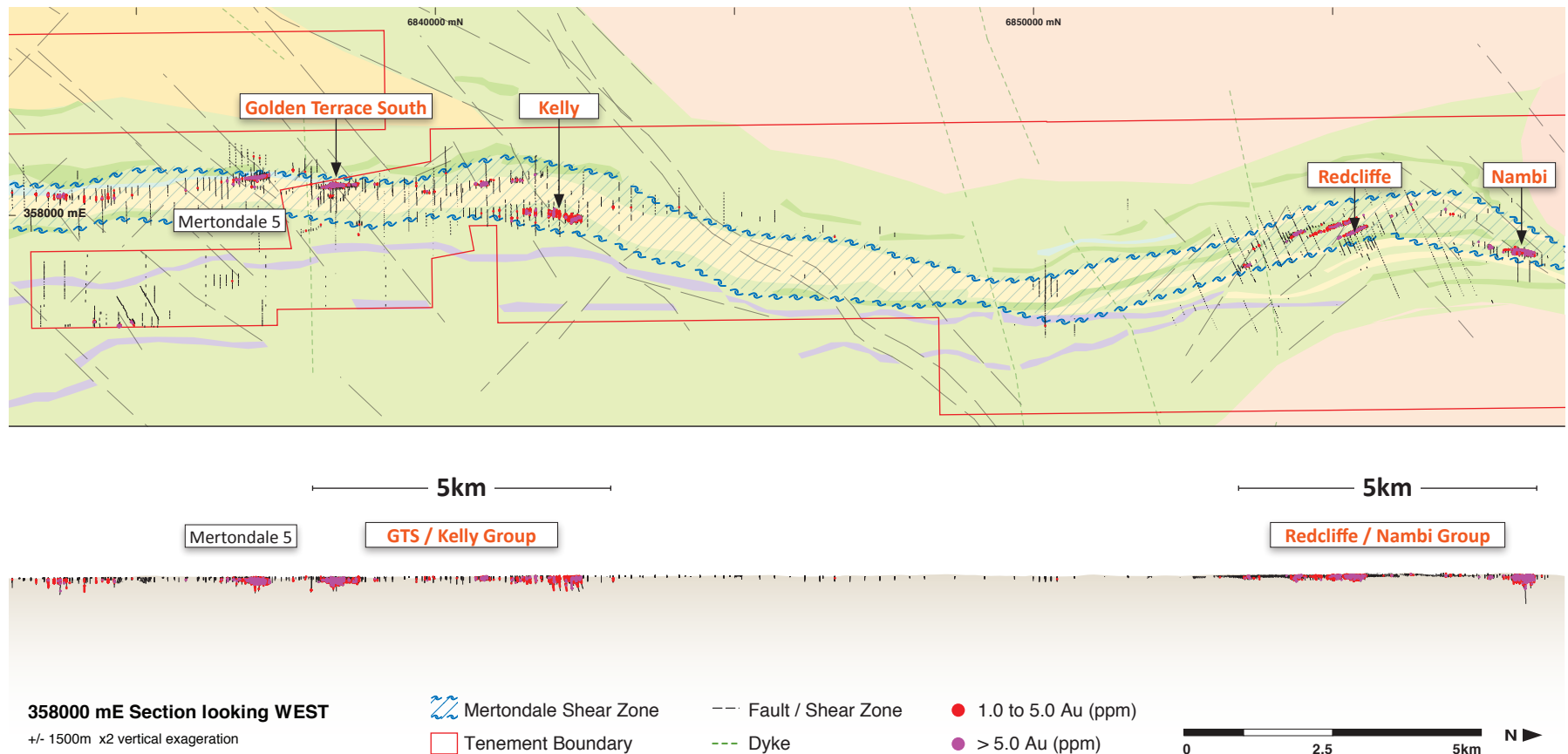
Mertondale Shear Zone: **+1.4Moz**

* See Appendix



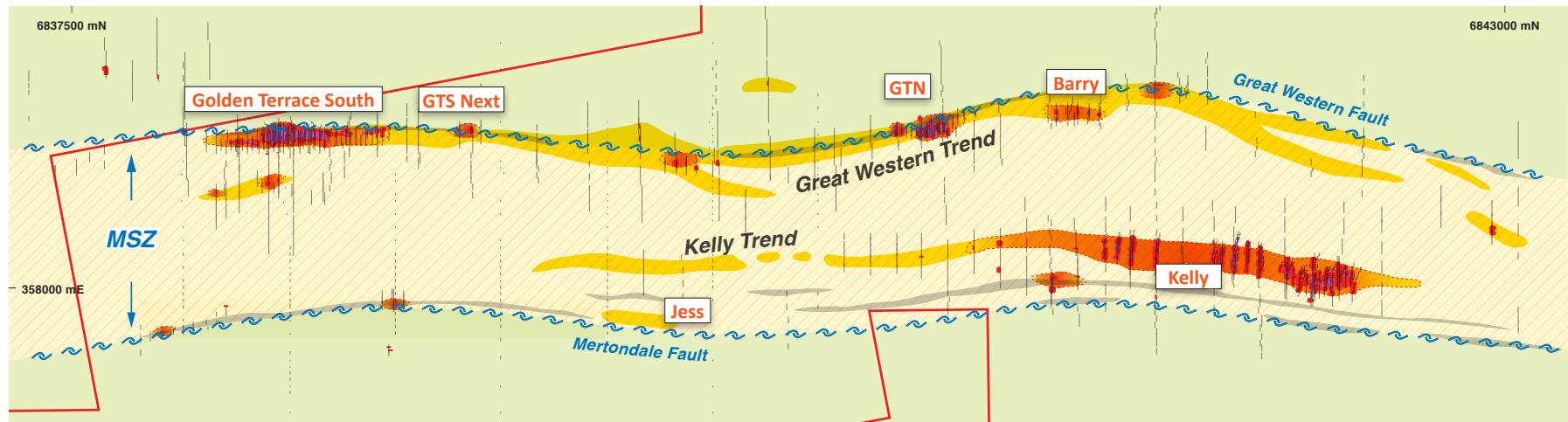
MSZ longitudinal section

- Numerous deposits/prospects.
- Limited deep drilling along major gold endowed structure.
- Areas of discovery mostly outcrop.
- Vast areas under shallow cover.



Golden Terrace South / Kelly Group

- Two mineralised bounding shears:
 - Great Western Fault & Mertondale Shear
 - > 170,000oz resource. Strong potential for growth.
- GTS and numerous prospects associated with Great Western Shear.
- Kelly prospects associated with Mertondale Fault.



GTS (90,500oz)

66m @ 3.70g/t
44m @ 6.41g/t
12m @ 16.68g/t

GTS Next

3m @ 2.37g/t
1m @ 10.28g/t

Jess

6m @ 0.73

GTN

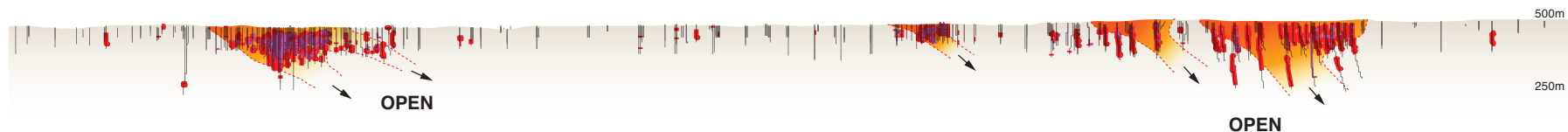
12m @ 4.29g/t
3m @ 18.82g/t
4m @ 9.64g/t

Barry

6m @ 3.03g/t
3m @ 3.90g/t

Kelly (80,000oz)

15m @ 8.04g/t
9m @ 6.35g/t
24m @ 1.65g/t



358000 mE Section looking WEST

+/- 1500m x2 vertical exaggeration

□ Tenement Boundary

~ Mertondale Shear Zone

■ Interpreted mineralised trend (+0.1g/t)

● 1.0 to 5.0 Au (ppm)

● > 5.0 Au (ppm)

OPEN

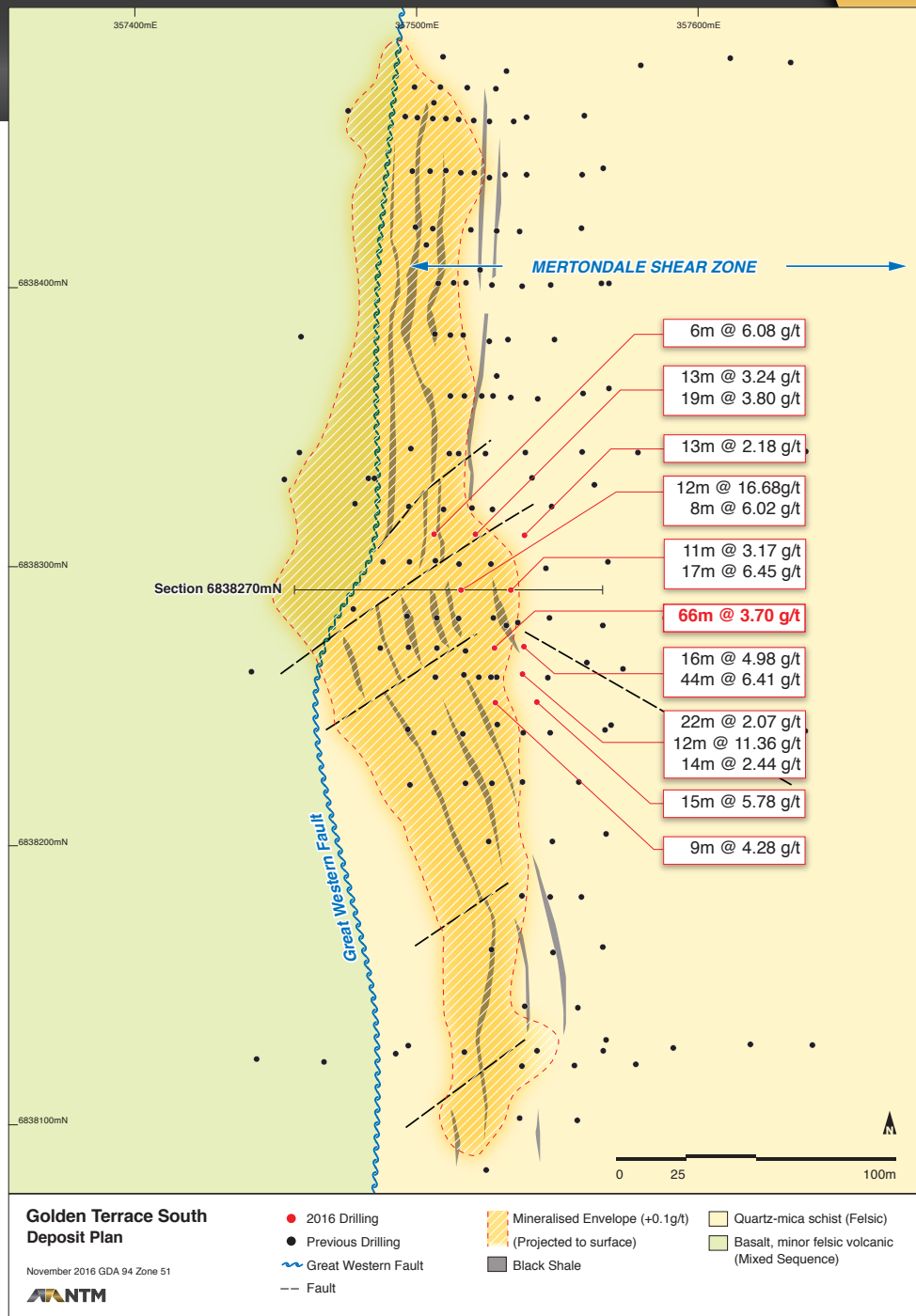
0 0.5 1km

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GTS Deposit Plan

- **GTS Deposit:**
90,500oz (1.31Mt @ 2.02g/t)*
- Part of Great Western Trend (Western side of MSZ, along Great Western Fault).
- Open Pit potential, primary high grade mineralisation – open.
- Drilling planned to define high grade shoots.

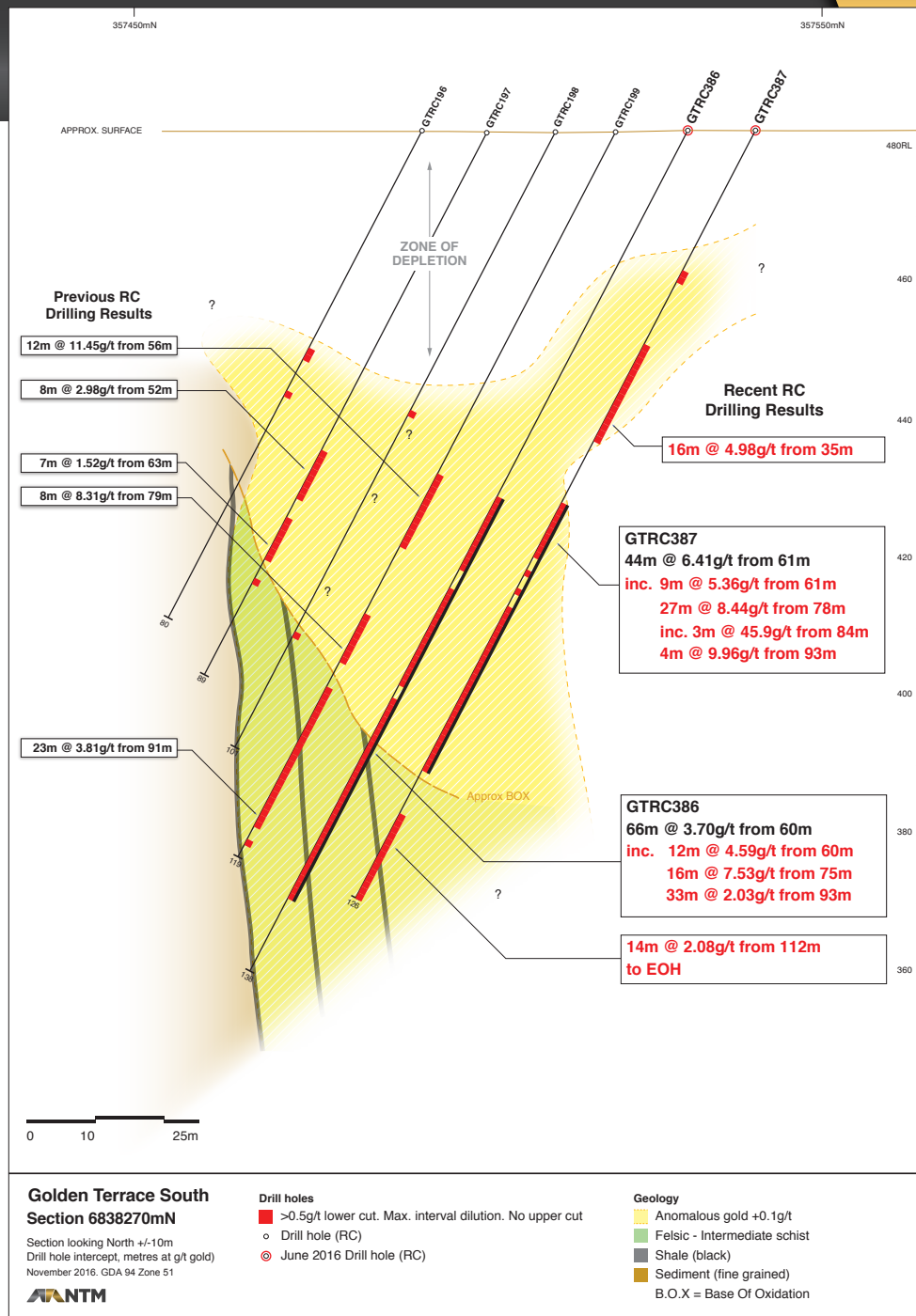
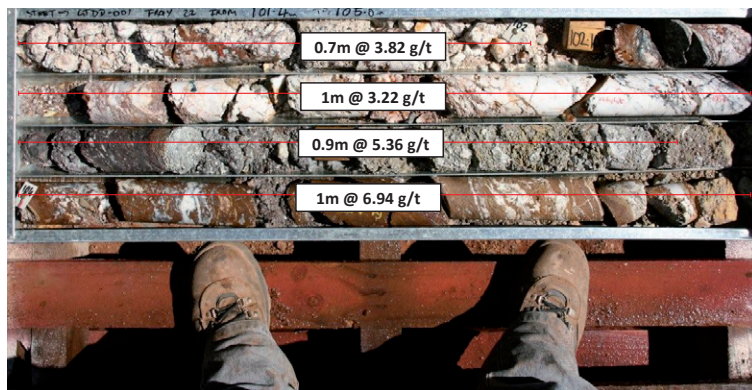
* See Appendix



Redcliffe Gold Project

GTS Deposit High Grade Zone

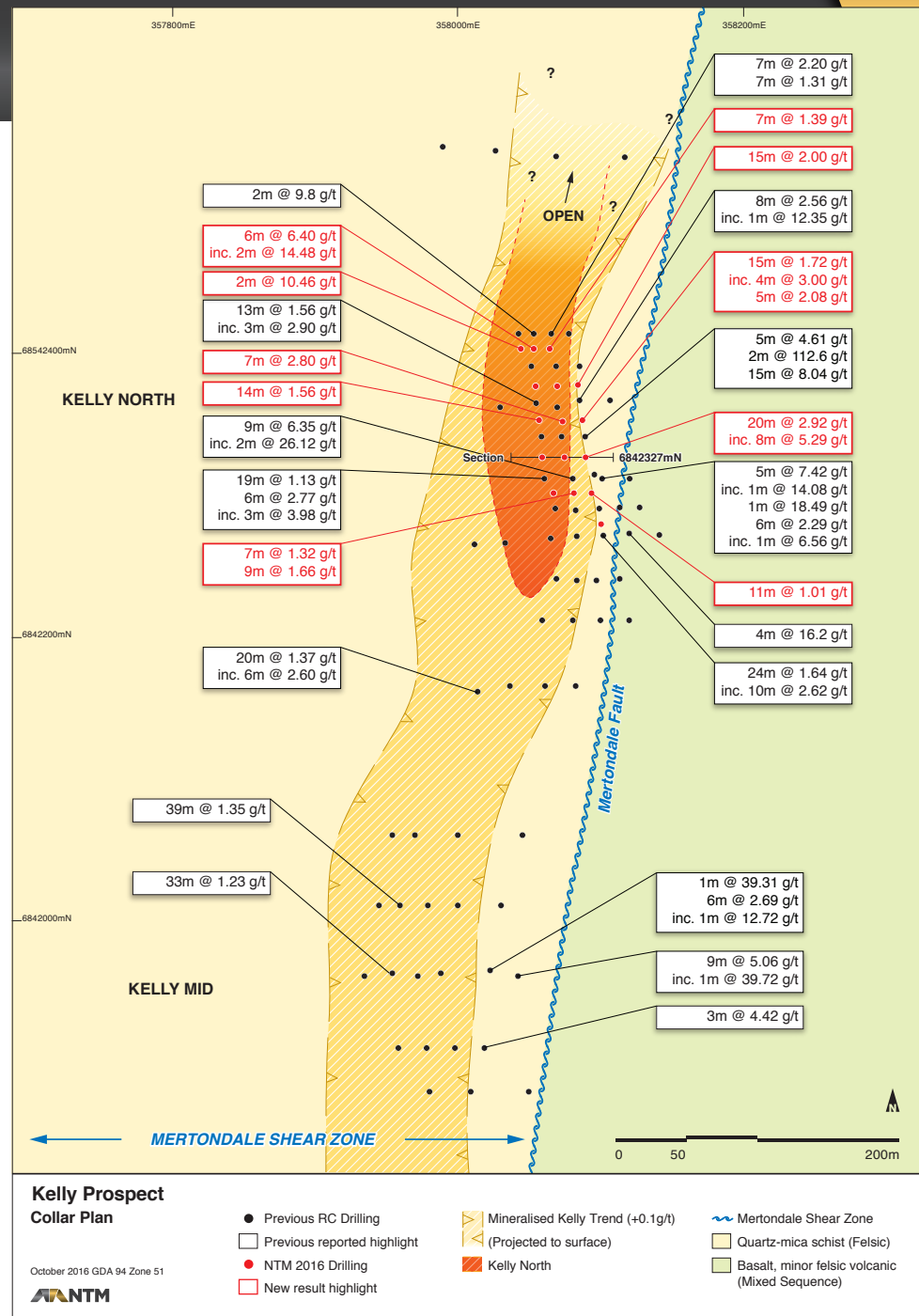
- High grade mineralised zone hosted in felsic volcanics and sediments (inc. black shale).
- Strong structural control – north plunging shoots.
- Primary mineralisation open at depth and along strike.



Kelly Deposit Plan

- Part of Kelly Mineralised Trend along Mertondale Fault (East side of MSZ).
- Very Large Mineralised zone, +2km strike, up to 100m wide – open along strike and at depth.
- **2.4Mt @ 1.04g/t***
(80,400oz @ 0.5g/t)
- **7.87Mt @ 0.63g/t***
(159,400oz @ 0.2g/t)
- Higher grade areas within broad mineralised zone yet to be fully defined.

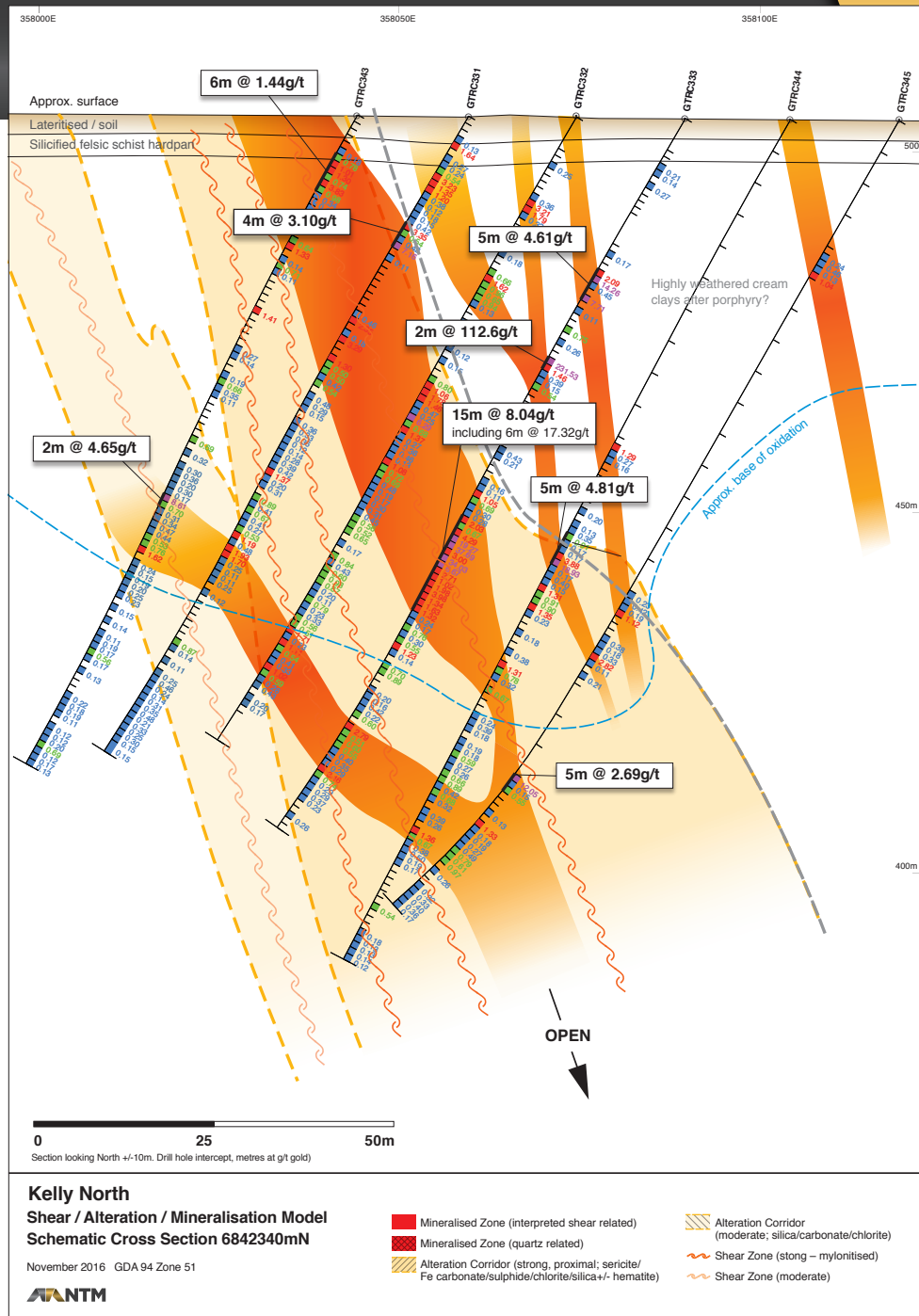
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Redcliffe Gold Project

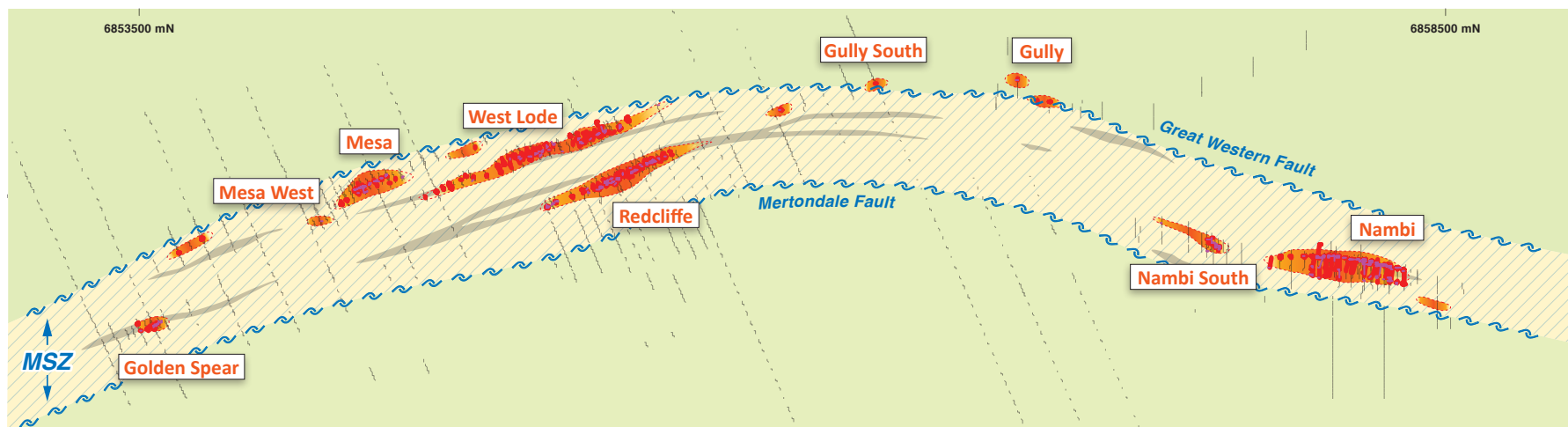
Kelly Deposit Section

- Mineralisation in sheared, Quartz-Pyrite veined dacite rocks.
- Oxide zone to +90m downhole.
- Controls to primary mineralisation to be determined – drilling planned.
- Open at depth and along strike.
- Kelly is a large lower-grade oxide deposit – potential for open pit ‘mainstay’.



Redcliffe / Nambi Group

- Interpreted northern continuities of Great Western Trend and Kelly Trends.
- Previous production in shallow open pits (3-4g/t) to ~60m.
- Numerous priority targets to test.
- Resources open along strike at depth.



Golden Spear
24m @ 4.30g/t
4m @ 41.9g/t

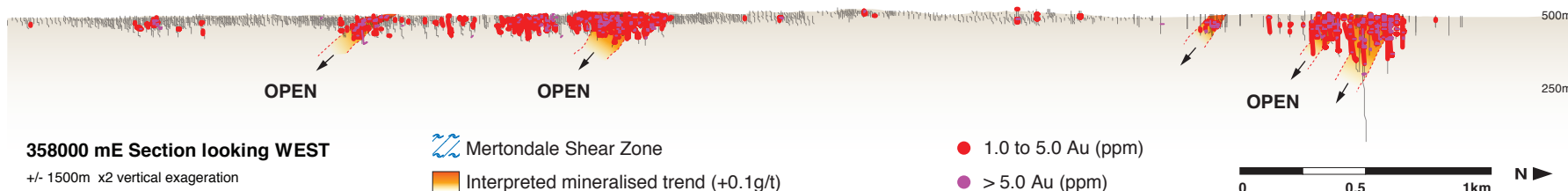
West Lode
17m @ 2.84g/t
3m @ 13.57g/t

Redcliffe
8m @ 4.09g/t
6m @ 4.46g/t

Gully South
11m @ 2.57g/t

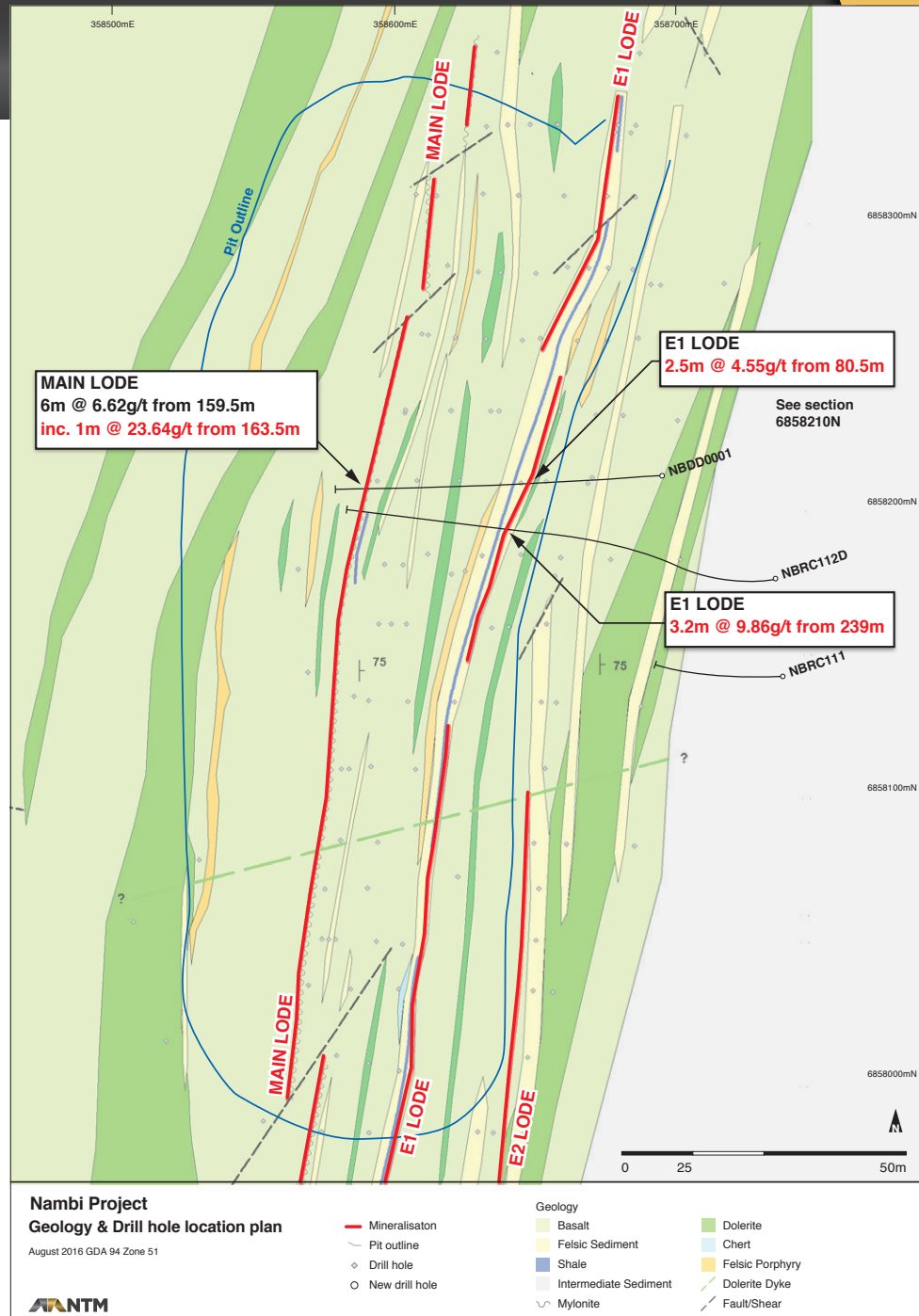
Nambi South
25m @ 3.57g/t
6m @ 4.65g/t

Nambi
6m @ 6.62g/t
10m @ 5.67g/t
10m @ 8.45g/t



Nambi Deposit Plan

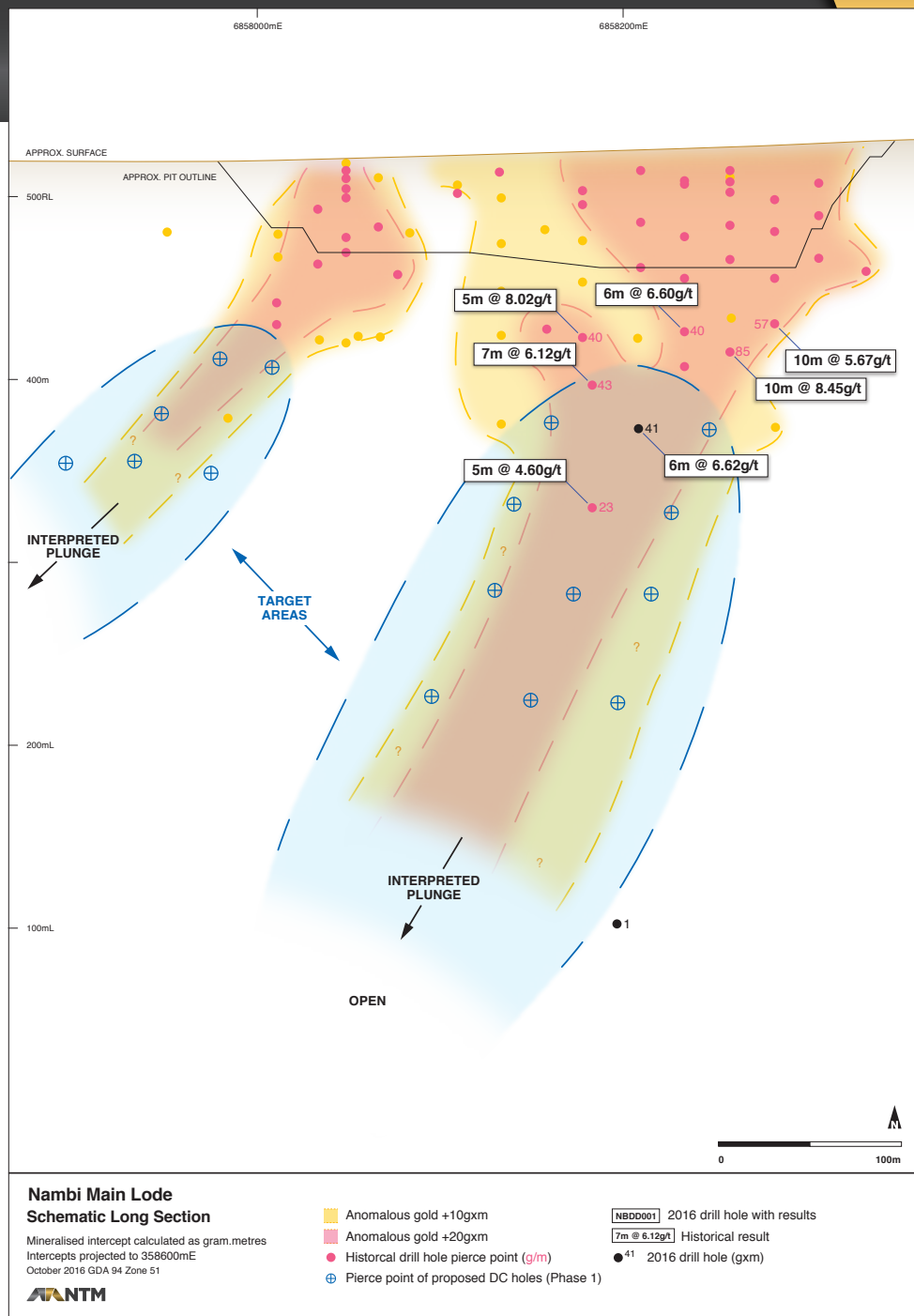
- Historical pit 400 x 60m deep.
32,000oz @ 3-4g/t (1990's).
- Mineralisation in multiple silica sulphide lodes: Main, E1 and E2 Lodes.
- Nambi system shows strong continuity along strike and depth.
- Deeper DDH drilling (July '16) intersected Main & East Lode well below historical pit.
- Open to north, and depth
– drilling planned.



Nambi Deposit High Grade

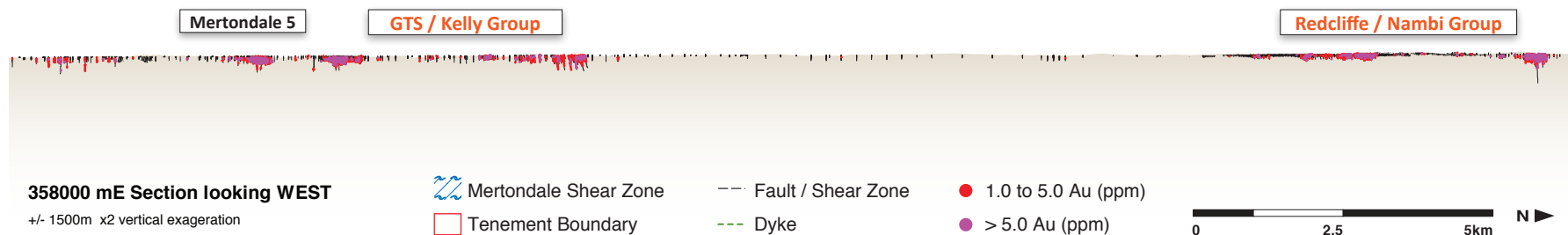
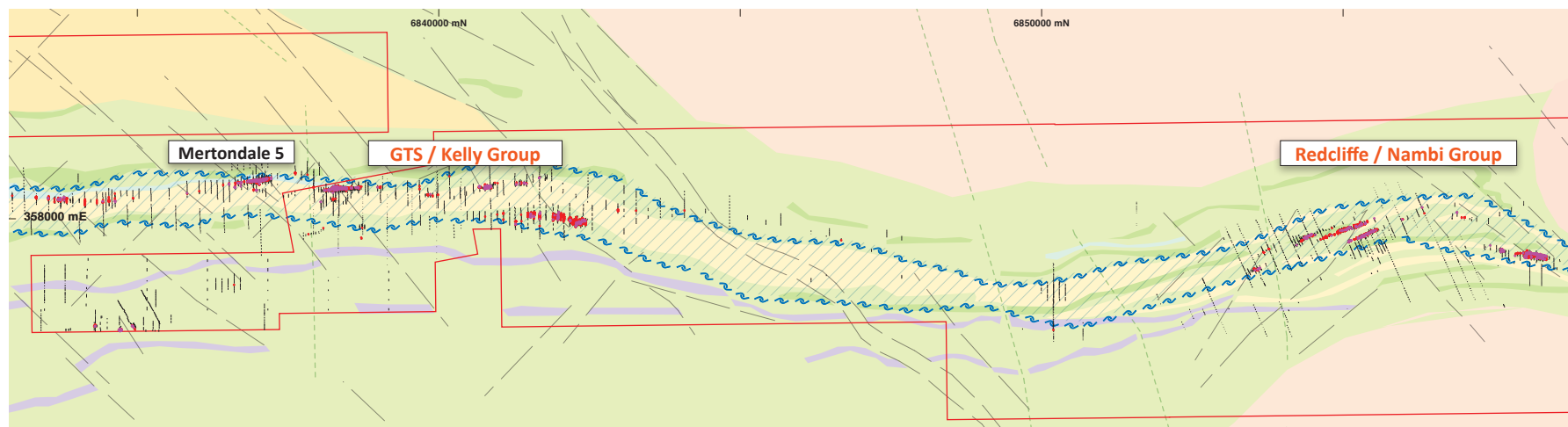
- **Current Resource Estimate:**
560,000t @ 2.88g/t (52,000oz)*
- Silica-pyrrhotite lodes in mylonitised sediment/volcanics.
- Potential for open pit cut back and ongoing U/G operation to depth.
- Interpreted southerly plunging shoots.
- Coherent high grade mineralisation defined to ~100m beneath base of pit.
- Drilling planned.

* See Appendix



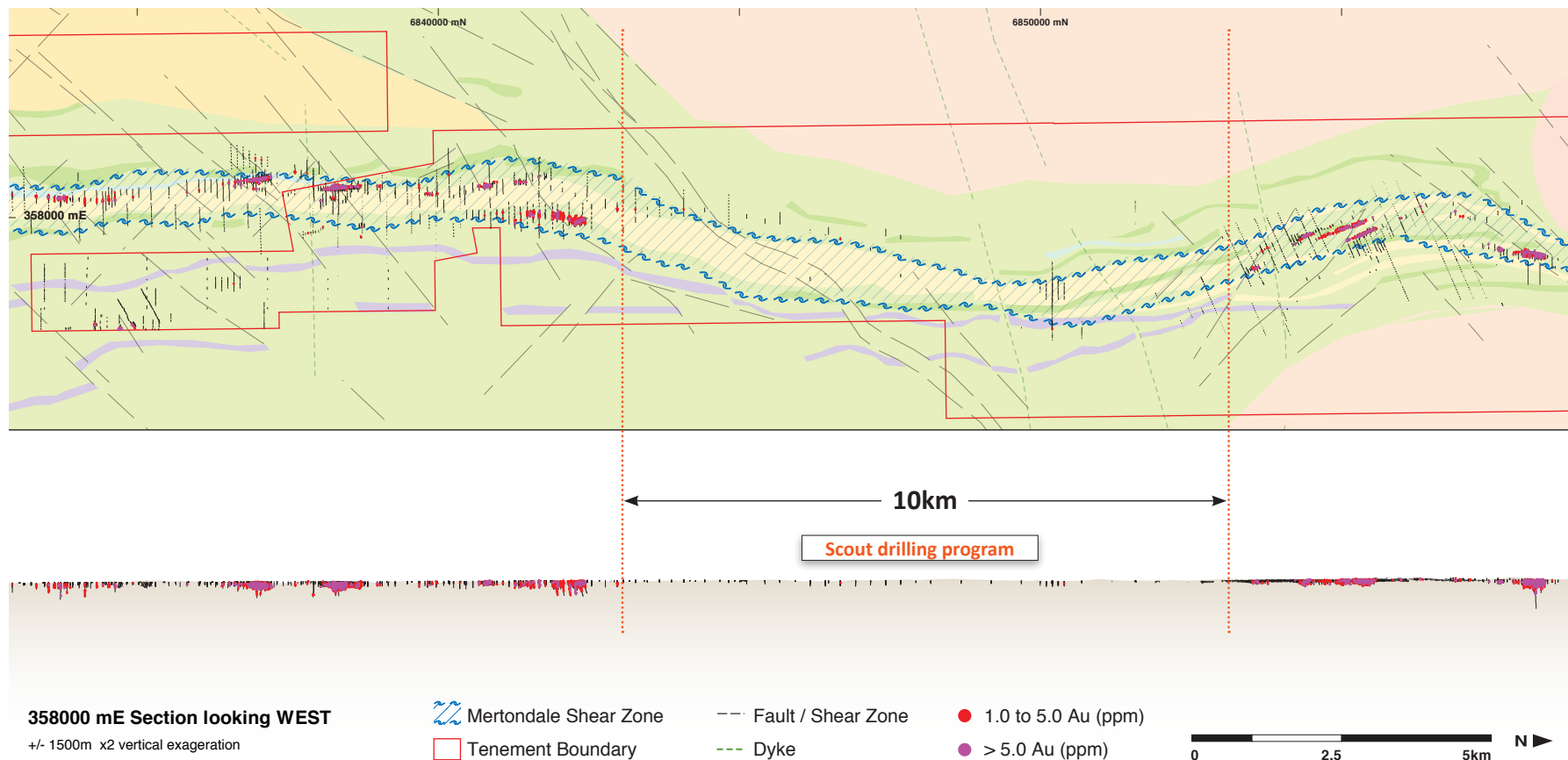
Uncover full Redcliffe Gold Project potential

- Increase known resources along strike and at depth: targets identified.
- Systematically explore untested areas along MSZ using geology, structural geophysics and geochemistry.



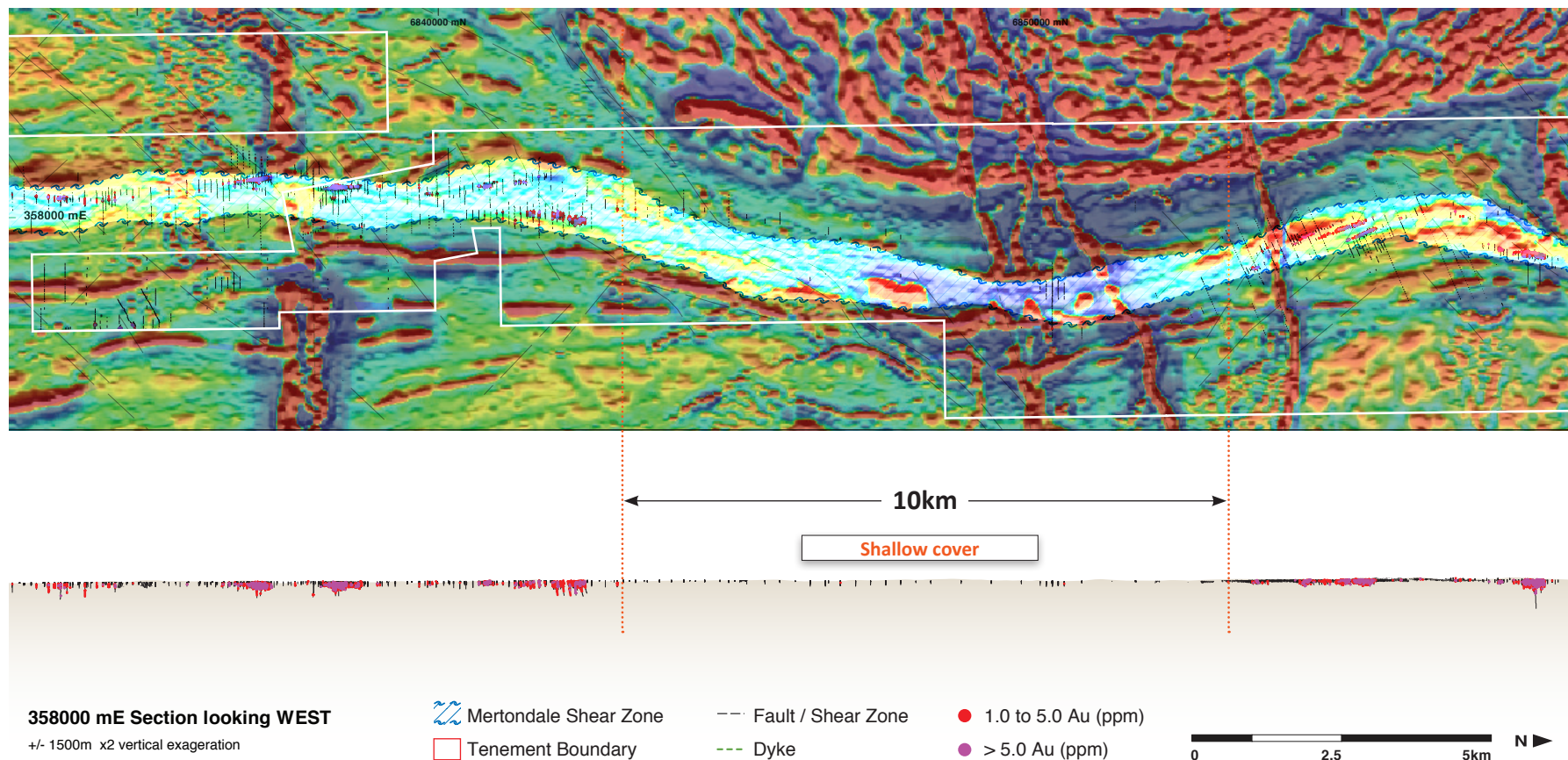
Regional exploration drilling

- Shallow cover masks target mineralisation along MSZ.
- Majority of historical drilling failed to penetrate cover and/or depleted zone. <20 holes +200m over 30km with 65% of drilling <50m total depth.
- Systematic deeper RAB/AC drilling ~100,000m planned.
- Potential for major discovery within 10km corridor between GTS/Kelly and Redcliffe Nambi Group.



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Corporate Summary

Board & Management

Paul Price	Chairman
Rodney Foster	CEO
Lloyd Jones	Non Executive Director
Mark Maine	Company Secretary
Lyle Thorne	Consultant Geologist

Share Structure

Shares on Issue:	226.3 million
Market Cap:	\$18.1m (\$0.08)
Top 20 holders:	45.7%
Directors Hold:	8.4%
Total Shareholders:	1,776

As at 4 Nov 2016

Share Price (ASX Code: NTM)



Resource Estimates

Deposit	Indicated			Inferred			Total		
	Tonnes	g/t	ounces	Tonnes	g/t	ounces	Tonnes	g/t	ounces
GTS	707,000	2.46	56,000	684,000	1.56	34,000	1,391,000	2.02	90,500
Nambi	262,000	3.3	28,000	298,000	2.5	24,000	559,000	2.88	52,000
Redcliffe				560,000	1.7	31,000	560,000	1.7	31,000
West Lode				373,000	1.2	15,000	373,000	1.2	15,000
Mesa				95,000	1.5	5,000	95,000	1.5	5,000
GT North				64,000	1.53	3,200	64,000	1.5	3,200
Golden Spear				26,000	1.6	1,000	26,000	1.6	1,000
Kelly				2,412,000	1.04	80,400	2,412,000	1.04	80,400
TOTAL	969,000	2.7	84,000	4,512,000	1.33	193, 600	5,480,000	1.57	277,600

References:

1. Resources estimations were carried out by independent consultants as detailed below:

Golden Terrace South (GTS): BGMS (Kalgoorlie, 2011)

Nambi: Coffey Mining (Perth, 2008)

Redcliffe: Coffey Mining (Perth, 2008)

West Lode: Coffey Mining (Perth, 2008)

Mesa: Coffey Mining (Perth, 2008)

Golden Terrace North (GTN): BGMS (Kalgoorlie, 2011)

Golden Spear: Coffey Mining (Perth, 2008)

Kelly: BGMS (Kalgoorlie, 2012)



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Questions

