Drilling Recommencing at Duketon Gold Project

Highlights

- **GSN plans to recommence drilling at its 100% owned Duketon Gold Project in August 2024**
- **Drilling will target the Golden Boulder prospect and other newly defined target areas**
- **Previous drilling at Golden Boulder from 2021 and 2023 programs included intercepts of:**
    - **5m at 3.3 g/t Au from 49m, including 1m at 12 g/t Au in RC hole 21GBRC0001**
    - **5m at 1.2 g/t Au from 1.3m, including 1m at 4.1g/t Au in RC hole 21GBRC0007**
    - **8m at 3.9 g/t Au from 44m, including 4m at 6.8 g/t Au in aircore hole 23GBAC008**
    - **12m at 1.3 g/t Au from 44m, including 4m at 2.4g/t Au in aircore hole 23GBAC022**
- **Recent soil geochemical surveys have strengthened Boundary prospect and defined new targets areas within the Amy Clarke prospect**

Great Southern Mining Limited (ASX: GSN) ("GSN" or the "Company") plans to recommence drilling in August 2024 at its 100% owned Duketon Gold Project ("Duketon" or the "Project"), located in the Eastern Goldfields of Western Australia. Drilling will initially focus on the Golden Bolder prospect, then test newly defined targets within the Project area. This drilling follows on from an intensive phase of target generation and ground truthing involving both incumbent GSN geologists and consultant geologists with a vast knowledge of gold mineralisation styles in the Duketon Belt (refer to GSN ASX announcements dated 5 May 2024 and 18 January 2023).

A number of soil geochemistry surveys have been completed at Duketon as part of the Company's ongoing target generation and target refinement strategy. New gold anomalies have been defined in the northeast of the Amy Clarke prospect along the interpreted Garden Well mineralised trend (host to Regis Resources' ~5Moz Garden Well deposit). These surveys have also strengthened the prospectivity of the Boundary prospect, where surface gold anomalism is up to 10 times greater than other prospects located on GSN's tenure. Boundary is located south of Amy Clark, also along the Garden Well trend.

GSN's Duketon Gold Project sits in the Duketon–Laverton major fault zone within the Eastern Goldfields Province, where there is a semi-regular distribution of major gold camps (+2Moz) on 30-to-40-kilometre intervals. GSN's tenure sits in a 75-kilometre stretch yet to yield a major hold deposit, which given the lack of modern exploration, bodes well for a significant discovery.

GSN welcomes comments and queries relating to this announcement on our Investor Hub site, where Company management can answer your questions directly (GSN Investor Hub link).

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GSN's Managing Director, Matthew Keane, commented:

"It is exciting to be back on the ground and drilling. This targeted program will see GSN return to the Golden Boulder prospect and follow up successful 2021 and 2023 drilling programs which intercepted high grade gold along three mineralised trends. Drilling has already defined up to 1.6 kilometres of mineralised strike and the upcoming program aims to confirm continuity, as well as testing depth extents. We also aim to test new targets that which have been defined by ongoing targeting. GSN's tenure remains highly underexplored with many target areas having virtually no drilling since Sons of Gwalia conducted broad spaced, shallow regional vacuum and air core programs in the 1990's".

Golden Boulder Drilling

GSN plans to recommence drilling in August 2024, starting at the Golden Boulder prospect (Figure 1). Golden Boulder sits on a prominent north-south structural trend that is host to multiple gold deposits including Rosemont (>2Moz), Baneygo (~380koz) and Ben Hur (~390Kkoz). The Golden Boulder area has over 50 historical working over a three-kilometre stretch, with historical production recorded at 1,915 tonnes at 28.6 g/t Au for 1,761 ounces of gold (see WAMEX report A85278).

Historic drilling at Golden Boulder is sparse and shallow, with very few holes penetrating beyond 40m depth. Prior to GSN's 2021 RC (2,777m) and 2023 air core (3,068m) programs, virtually no drilling has been conducted at this prospect since 1995.

Mineralisation has been delineated along three parallel trends, denoted as the Main line, East line and Ogilvies. On the Main line, mineralisation has been defined over a 1.6-kilometre strike with better intercepts from GSN drilling including:

- **5m at 3.3 g/t** Au from 49m, including **1m at 12.3 g/t** Au and **1m at 1.2 g/t** Au from 73m in 21GBRC0001,
- **5m at 1.2 g/t** Au from 103m, including **1m at 4.1 g/t** Au in 21GBRC0007,
- **12m at 1.3 g/t** Au from 44m, including **4m at 2.4 g/t** Au from 48m in 23GBAC022, and
- **4m at 2.4 g/t** Au from 44m in 23GBAC059.

Mineralisation along the East line follows an ultramafic-sedimentary lithological contact which is coincident with quartz veining and ferruginous alteration within a strongly sheared structure. This contact is clearly defined in a 2016 sub-audio magnetic (SAM) geophysical survey and can be traced for four kilometres within GSN's tenure. To date, the majority of this four-kilometre strike remains untested. Previous intercepts along the East line include:

- **8m at 3.9 g/t** Au from 44m, including **4m at 6.8 g/t** Au 48m in 23GBAC008, and
- **7m at 1.2 g/t** Au from 121m, including **2m at 3.3 g/t** Au in hole 21ERRC0005

The Ogilvie's line is defined by historical 1986 drilling of 41 shallow holes, of which, 14 holes intersected plus 1.0 g/t gold, with higher grades of 4m @ 5.1 g/t Au from 10m in hole OL11 and 2m @ 4.9 g/t Au from 8m in hole OL06 (see WAMEX report A20627). RC drilling by GSN in 2021 recorded intercepts including:

- **8m @ 2.1 g/t** Au from 32m, including **4m @ 3.6 g/t** Au in 21OGRC0006
- **8m @ 1.1 g/t** Au from 50m, including **1m @ 2.0 g/t** Au in 21OGRC0009
- **7m @ 1.1 g/t** Au from 101m, including **2m @ 2.5 g/t** Au in 21OGRC0012

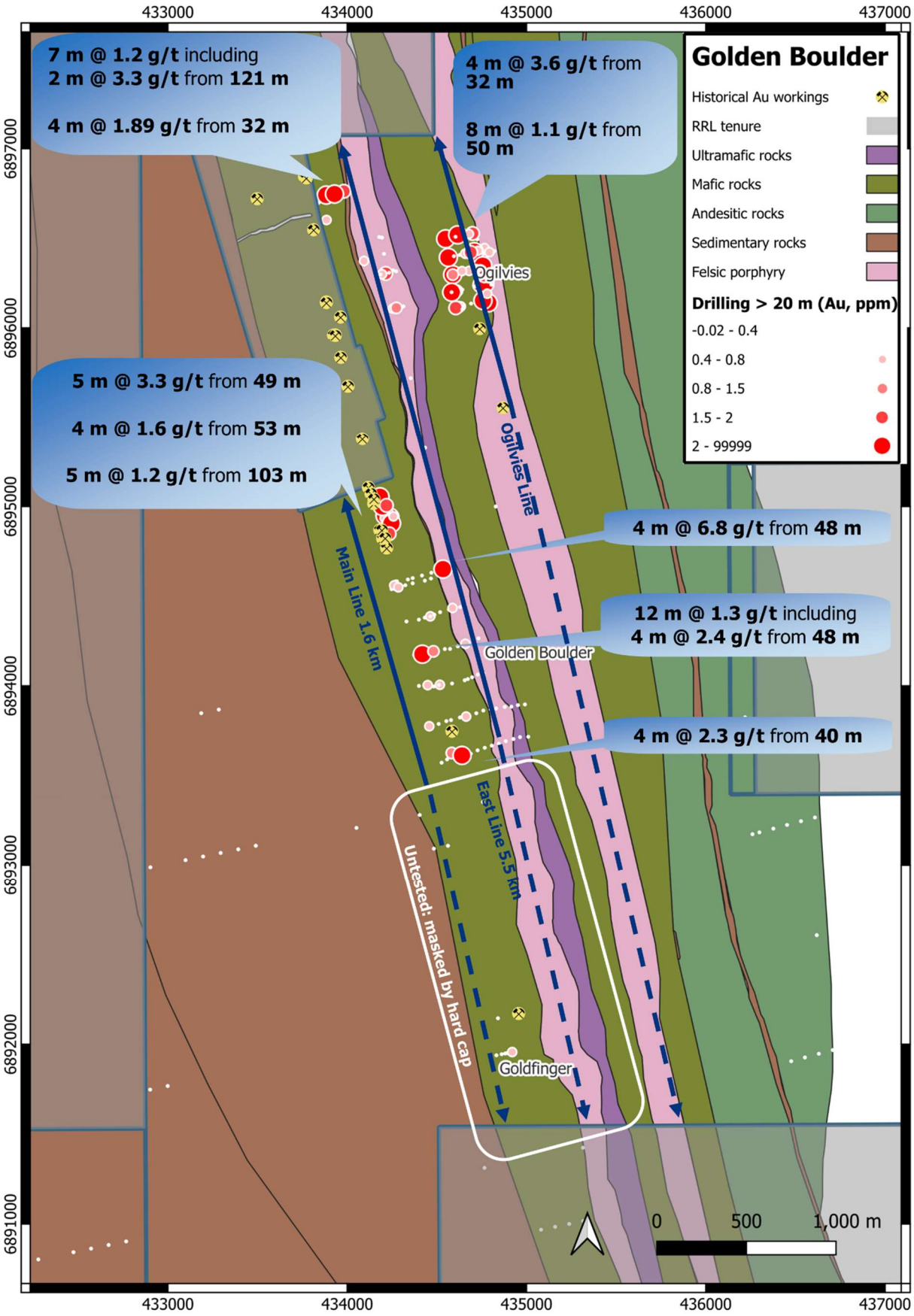

Figure 1. The three main identified gold trends at Golden Boulder with limited drilling to date, showing that prospective trends continue to the south and are untested due to the presence of ferruginous hard cap.

Target prospectivity boosted by recent soil geochemical surveys

GSN has completed several geochemical soil surveys year-to-date aimed at refining and expanding existing targets, and to test newly defined targets. New gold anomalies have been defined in the northeast of the Amy Clarke prospect along the interpreted Garden Well mineralised trend (host to Regis Resources' ~5Moz Garden Well deposit) (Figure 2). These surveys have also strengthened the prospectivity of the Boundary prospect, where surface gold anomalism is up to 10 times greater than other prospects located on GSN's tenure. Boundary located south of Amy Clark, also along the Garden Well trend (Figure 3).

Amy Clarke prospect

The Amy Clarke area is interpreted to host approximately 12 kilometres of the Erlistoun and Garden Well structural trends. GSN previously defined up to five kilometres of gold and indicator element surface anomalism just ~3.5 kilometres south of Regis Resources' Erlistoun open pit (320koz at 1.8 g/t Au). Broad spaced reconnaissance air core drilling of this zone in 2021 returned several >1 g/t gold intercepts, including a high-grade intercept of 8m @ 6.7g/t Au, including 4m @ 12.5 g/t Au from 32m in hole 21ACAC0147. A 2024 soil geochemical survey has expanded the prospectivity of the Amy Clarke area with at least three new gold-in-soil anomalies identified along the Garden Well Trend. Mapping has commenced over the anomalous areas and geology noted to-date along this trend is analogous with known styles of gold mineralisation, with NW–SE fault structures intersecting the main regional structures. Chert breccias and boudinaged cherts are developed along sheared ultramafic–sedimentary lithological boundaries – a favourable environment for gold precipitation.

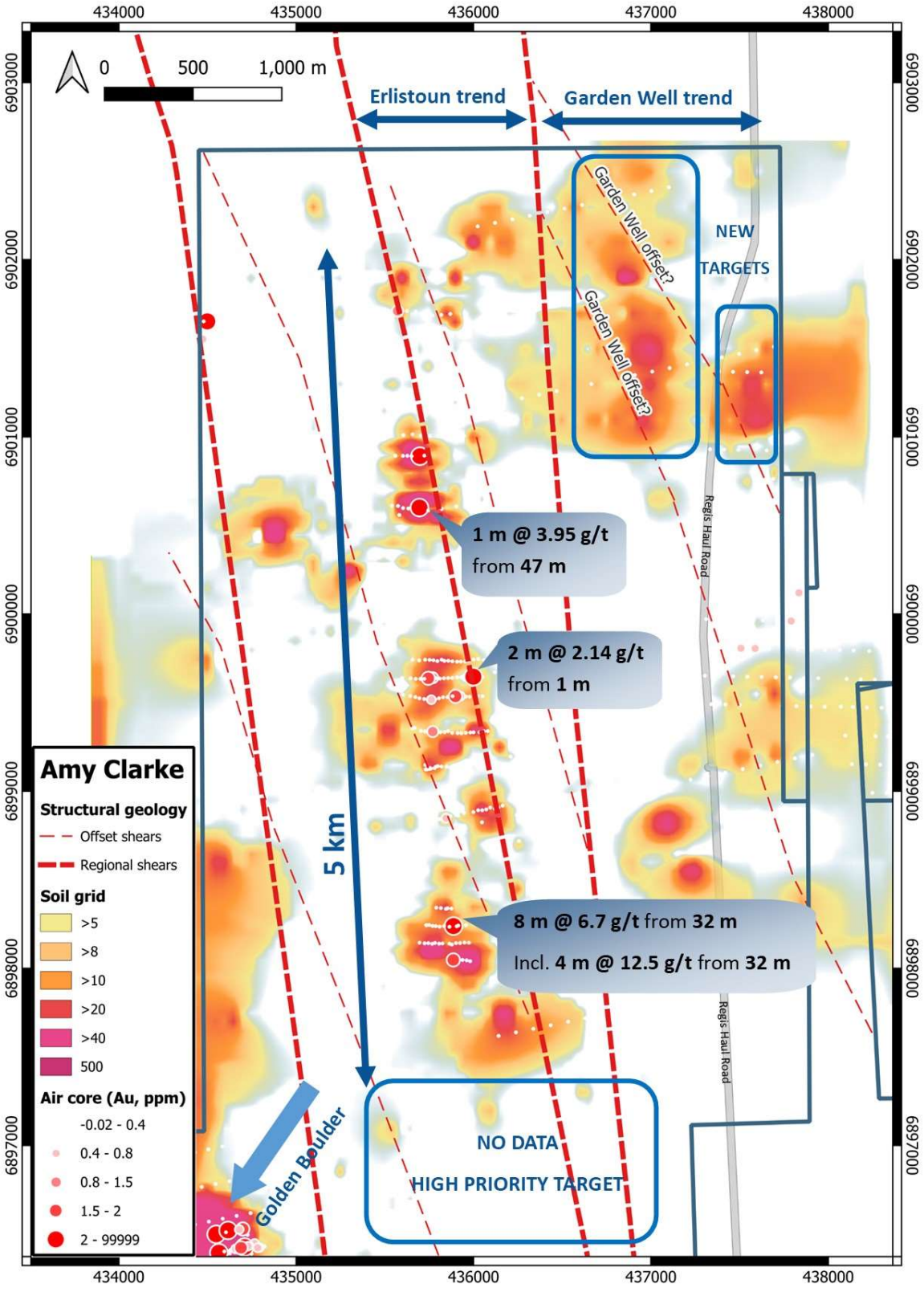

Figure 2. Gold-in-soil geochemical heat map of the Amy Clarke area showing the previously defined 5-kilometre-long gold anomaly (refer to ASX GSN announcement dated 8 November 2022) along the interpreted Erlistoun trend and newly defined geochemical anomalies over the interpreted Garden Well trend.

Boundary Prospect

GSN commenced work on the Boundary prospect in 2024 after it was favoured as a high-ranking target by both incumbent and consultant geologists. Key attributes of the Boundary area include historical gold intercepts (including 2m @ 1.4 g/t Au from 14m) from sparse shallow drilling, as well as observed and interpreted cross-cutting structures on the main Garden Well structure. Field mapping highlighted several ultramafic gossans and ironstones overlying sheared ultramafic olivine cumulate rocks with asymmetrical quartz boudins. Soil geochemical surveys completed in 2024 have enhanced the prospectivity of the region with gold anomalism up to 10 times higher than other prospects where drilling has intercepted high grade gold over geochemical targets.

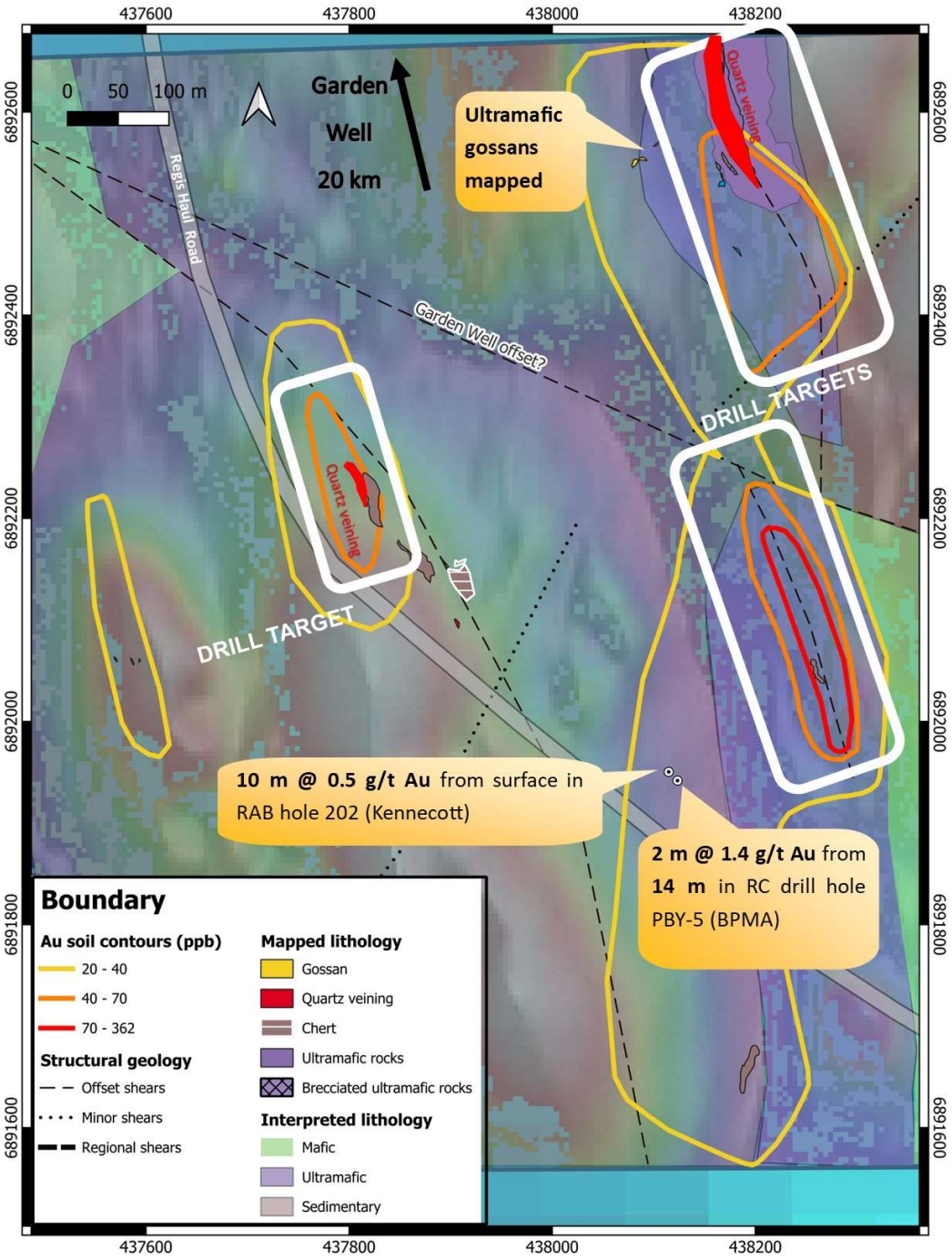

Figure 3. Geological map of the Boundary prospect over aeromagnetic geophysics showing newly defined gold-in-soil anomalies, historical drill intercepts and key structures.

Duketon Gold Project

The Duketon Gold Project is located in the Eastern Goldfields Province within the Duketon–Laverton major fault zone. It has been identified through statistical wavelet (fixed zero-mean function) data analysis by Doutre et al., (2015) that major gold deposit distribution in this fault zone follows a rhythmic spacing of 30 to 40 kilometres, with clusters of large camps spaced at circa 100 kilometres. These distances are analogous to the thickness of the whole crust or lithosphere, suggesting consistent and self-organising crustal controls on gold deposit formation. In the Eastern Goldfields Province, gold deposits formed during a regional mineralisation event between 2655-2620 Ma (Duuring et al. 2007; Blewett et al. 2010) in a range of mineralisation styles. The Eastern Goldfields Province is host to greater than 130 Moz gold with major deposits, including Sunrise Dam (>8 Moz, Anglo Gold Ashanti), the Wallaby - Granny Smith camp (>9 Moz, Gold Fields Ltd), The Laverton gold camp (>2 Moz) and the Garden Well – Rosemont camp (>7 Moz, Regis Resources NL).

Anomalously, GSN's tenure sits along a circa 75-kilometre stretch, between the Laverton and Garden Well – Rosemont camps without a major discovery (Figure 4). GSN attributes this not to a lack of prospectivity, but rather insufficient depth of historical drilling and a lack of modern exploration.

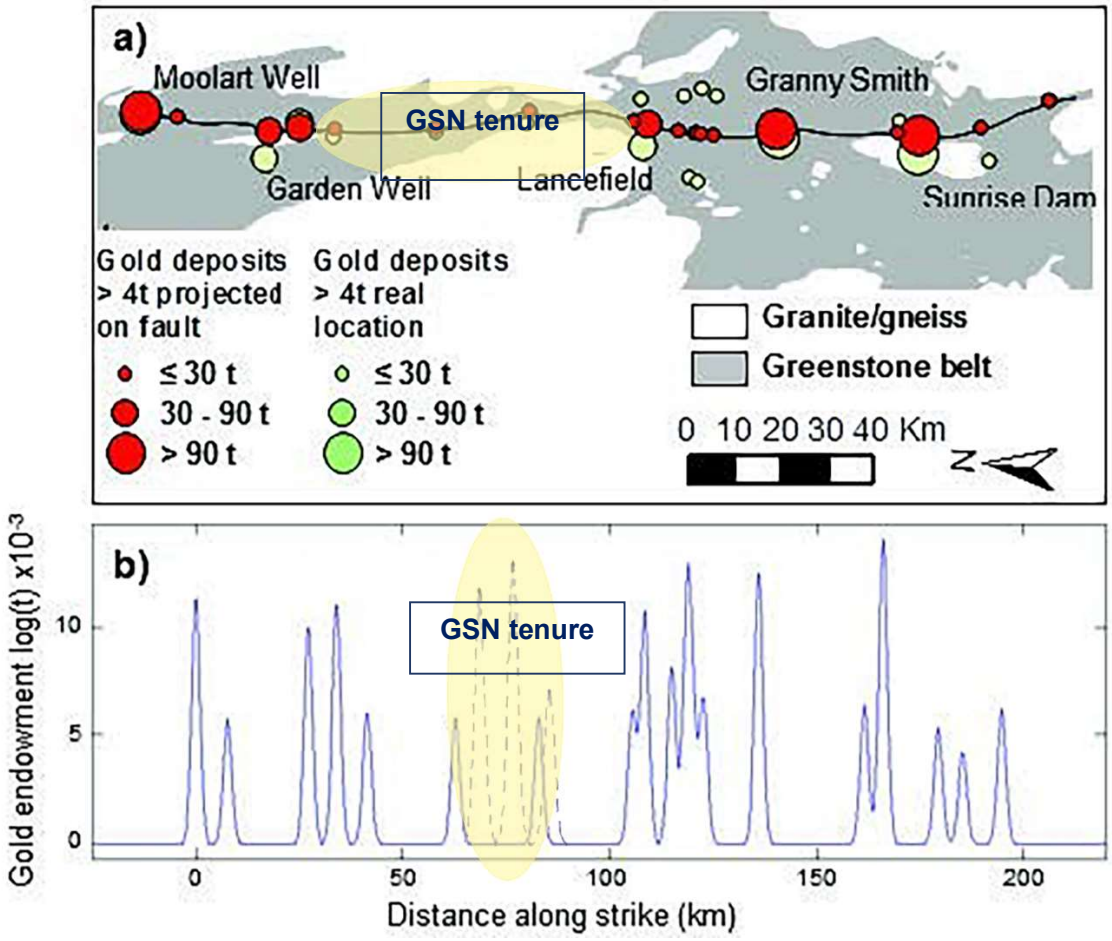

Figure 4. (a) Major gold deposits along the Duketon-Laverton fault zone (Eastern Goldfields Province) showing the position of GSN tenure and (b) Distributional scalogram of the profile showing the spatial distribution of gold endowment across all scales with prediction of missing repeat of major mineralisation within GSN tenure. Adapted from Doutre et al., 2015.

About Great Southern Mining

Great Southern Mining Limited is a leading Australian listed exploration company. With significant land holdings in the world-renowned mining districts of Laverton in Western Australia (Figure 5) and Mt Carlton in north Queensland, all projects are located within 40km of operating mills and major operations.

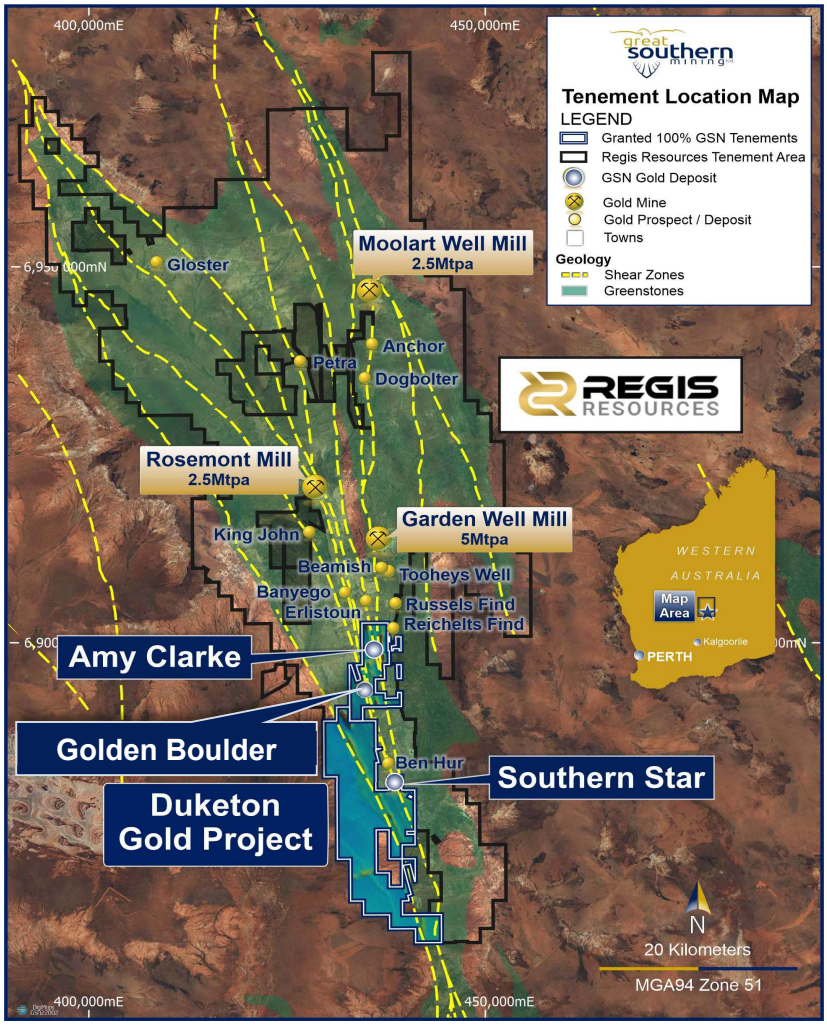

Figure 5. Plan view of GSN's tenement holding in the Duketon Gold Belt highlighting the locations of key prospects and proximity to Regis Resources' Garden Well, Rosemont and Moolart Well mills. Mineralised gold trends are in delineated in yellow.

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The release of this ASX announcement was authorised by the Managing Director on behalf of the Board of Directors of the Company.

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Competent Person's Statement

The information in this report that relates to exploration results at the Duketon Gold Project is based on, and fairly represents, information and supporting documentation compiled and/or reviewed by Ms Rachel Backus. Ms Backus is an employee and Senior Exploration Geologist of Resourceful Exploration Services Pty Ltd (ABN 29 661 905 193) and has been engaged by Great Southern Mining Limited. She has sufficient experience relevant to the assessment and of this style of mineralisation to qualify as a Competent Person as defined by the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves – The JORC Code (2012)". Ms Backus consents to the inclusion in this report of the matters based on the information in the form and context in which they appear.

Forward Looking Statements

Forward- looking statements are only predictions and are not guaranteed. They are subject to known and unknown risks, uncertainties and assumptions, some of which are outside the control of the Company. Past performance is not necessarily a guide to future performance and no representation or warranty is made as to the likelihood of achievement or reasonableness of any forward-looking statements or other forecast. The occurrence of events in the future are subject to risks, uncertainties and other factors that may cause the Company's actual results, performance or achievements to differ from those referred to in this announcement. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. Any forward- looking statements in this announcement speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law and the ASX Listing Rules, the Company, its directors, officers, employees and agents do not give any assurance or guarantee that the occurrence of the events referred to in this announcement will occur as contemplated.

JORC Code 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	The recent soil program was undertaken in between April and May 2024 in the northeast of the Amy Clarke prospect and the Boundary prospect. Samples were taken from the B-horizon below the organic layer (~10 cm to 30 cm BS) on 200 m wide line spacing 40 m apart and with some lines extended over areas of interest. The field sampling procedure followed the CSIRO UFF+ recommended procedure with soils sieved in the field to 1.6 mm and minimum 200 g sample then sent to the Labwest laboratory in Perth where the >200g sample is added to deionised water to which sodium hexametaphosphate is added as a dispersant. The sample is rolled for 24 hrs, followed by up to 4 hrs settling. A solution containing the 2-micron particle size is drawn from the solution, 0.2 g of the 2-micron fraction is analysed for gold and multi-elements using microwave assisted aqua regia digest. Analysis is completed by ICP-MS/OES. The newly acquired data was then merged with soil data from previous sampling campaigns.
Drilling techniques	No new drilling is reported. Relevant exploration done by other parties are outlined in the body of this report or previous GSN ASX announcements.
Drill sample recovery	No drill recovery was reported.
Logging	Soil sample site sites are described noting regolith regime and sample depth. Rock descriptions are also taken in hand-written logs.
Sub-sampling techniques and sample preparation	Soil sample preparation of Great Southern Mining samples follows industry best practice standards at accredited laboratories. Samples were sieved in the field to 1.6 mm and approximately 200 g sample was then sent to the LabWest laboratory in Perth, where the 2-micron fraction was roll. Sieves were cleaned thoroughly between samples; no duplicates or field standards were taken due to the early stage of exploration. Samples were taken from the B-horizon below the organic layer (~10 cm to 30 cm BS) to ensure in-situ material. Sample size of >200 g is deemed appropriate for fine fraction soil survey.
Quality of assay data and laboratory tests	Recent soil samples were submitted to LabWest for processing and analysis with standards being inserted by the company in-house. LabWest is a commercial independent certified laboratory in Perth, Western Australia. The -2 µm fraction of the soil samples were analysed for Ag, Al, As, Au, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, <g, Mn, Mo, Nb, Ni, Pb, Pt, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, and Zr via LabWest's Ultrafine + microwave digest with an ICP OES/MS finish. Quality control procedures for the soil analyses include the insertion of laboratory in-house controls, blanks and duplicates. The assaying techniques and quality control protocols used are considered appropriate for the data to be used for reporting exploration soil geochemistry results.
Verification of sampling and assaying	Recent soil data was collected in the field in QField, before being uploaded to an MS SQL database via Geobase external database management.
Location of data points	New soil samples were recorded in MGA94 – Zone 51 grid coordinates using a hand-held GPS +/- 3m. Topographic control in nominal.
Data spacing and distribution	New soil samples were generally taken on a 40 m by 200 m grid, with surveys extended in some areas.
Orientation of data in relation to geological structure	No sample bias has been detected at this stage. No drilling orientation and/or sampling bias has been recognised at this time.

Criteria	Commentary
Sample security	Soil samples are collected in paper geochemistry bags and delivered directly from site to the assay laboratories in Perth by a GSN employee.
Audits or reviews	No audits or reviews have been conducted.

Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	The Duketon tenement E38/3518 is in good standing along with the rest of the combined reporting group tenements. Great Southern Mining Ltd, or its wholly owned subsidiary, East Laverton Exploration Pty Ltd, are the holders.
Exploration done by other parties	Relevant exploration done by other parties are outlined in the body of this report or previous GSN ASX announcements.
Geology	The Duketon Greenstone Belt is comprised of mafic and ultramafic rocks, felsic volcanic and volcaniclastic rocks, and associated clastic sedimentary rocks. The contacts with bounding granitic rocks are typically intensely deformed. Axial surfaces of folds typically trend north-northwest with limbs commonly sheared by major structures. The major regional scale structures are a key element for large scale gold deposition and three of these mineralised structures strike through the Duketon tenements and are highly prospective areas for gold.
Drill hole Information	No new drilling is reported.
Data aggregation methods	Metal equivalent values are not reported.
Relationship between mineralisation widths and intercept lengths	Anomalous intercepts are reported based on the available composite data.
Diagrams	Relevant diagrams are included in the body of this report.
Balanced reporting	All matters of importance have been included.
Other substantive exploration data	All relevant information has been included.
Further work	Future exploration includes follow-up reverse circulation (RC) drilling. Diagrams highlight the areas of interest for follow-up work. Further work is described and contained within the body of the announcement.