

## NEW HIGH PRIORITY TARGETS IDENTIFIED AT DUKETON GOLD PROJECT

### Highlights

- Detailed structural modelling and field mapping has identified five new high priority gold targets at GSN's 100% owned Duketon Gold Project
- New targets are located on structural trends which host multiple major gold deposits to the north, such as Regis Resources +3Moz Garden Well gold deposit
- Drilling at the Duketon Gold Project is planned to commence in Q1 2023, targeting:
  - Extensions to known mineralisation at the Southern Star prospect along strike, at depth and on parallel trends
  - 3km of prospective strike at the Golden Boulder prospect, adjacent to historic workings and recent gold intercepts, which include 5m @ 3.3g/t gold and 8m @ 2.1g/t gold
  - Follow up recent high-grade intercepts at the Amy Clarke prospect, including 8m @ 6.7g/t gold
  - Newly identified structural targets

Great Southern Mining Limited (ASX: GSN) ("**GSN**" or the "**Company**") has completed a detailed structural geology interpretation for the northern portion of the Company's 100% owned Duketon Gold Project, north of the town of Laverton in Western Australia (covering Exploration License E38/3518). This new interpretation, which was completed by GSN's Technical Consultant Marcus Willson, has highlighted **five new, high priority gold exploration targets**. These new targets are in addition to existing prospects with known high grade gold mineralisation, including Southern Star, Amy Clarke and Golden Boulder (Figure 1). GSN is planning to recommence drilling at the Duketon Gold Project in the first quarter of calendar year 2023.

### GSN's Managing Director, Matthew Keane, commented:

*"These new targets at GSN's Duketon Gold Project have been generated using sound geological interpretation based on an orogenic reconstruction of the belt. These targets sit along trends known to host multimillion ounce deposits to the north within Regis Resources' tenure".*

*"GSN is anticipating 2023 will be one of the Company's busiest with regards to high impact drilling at the Duketon Gold Project. The team are very excited to get on the ground to test both the new target areas, as well as extensions to known gold mineralisation at the Southern Star, Amy Clarke and Golden Boulder prospects".*

**GSN's Technical Consultant, Marcus Willson, commented:**

*"The on-going work that GSN is completing on the Duketon Gold Project continues to demonstrate the potential of Great Southern's tenement package in this area. Strong results in the Amy Clarke and Golden Boulder area warrant aggressive follow-up as planned. Continuing to understand controls in mineralisation within the belt has enabled the identification of the additional structural targets and represent an exciting next phase of exploration to further define and test them".*

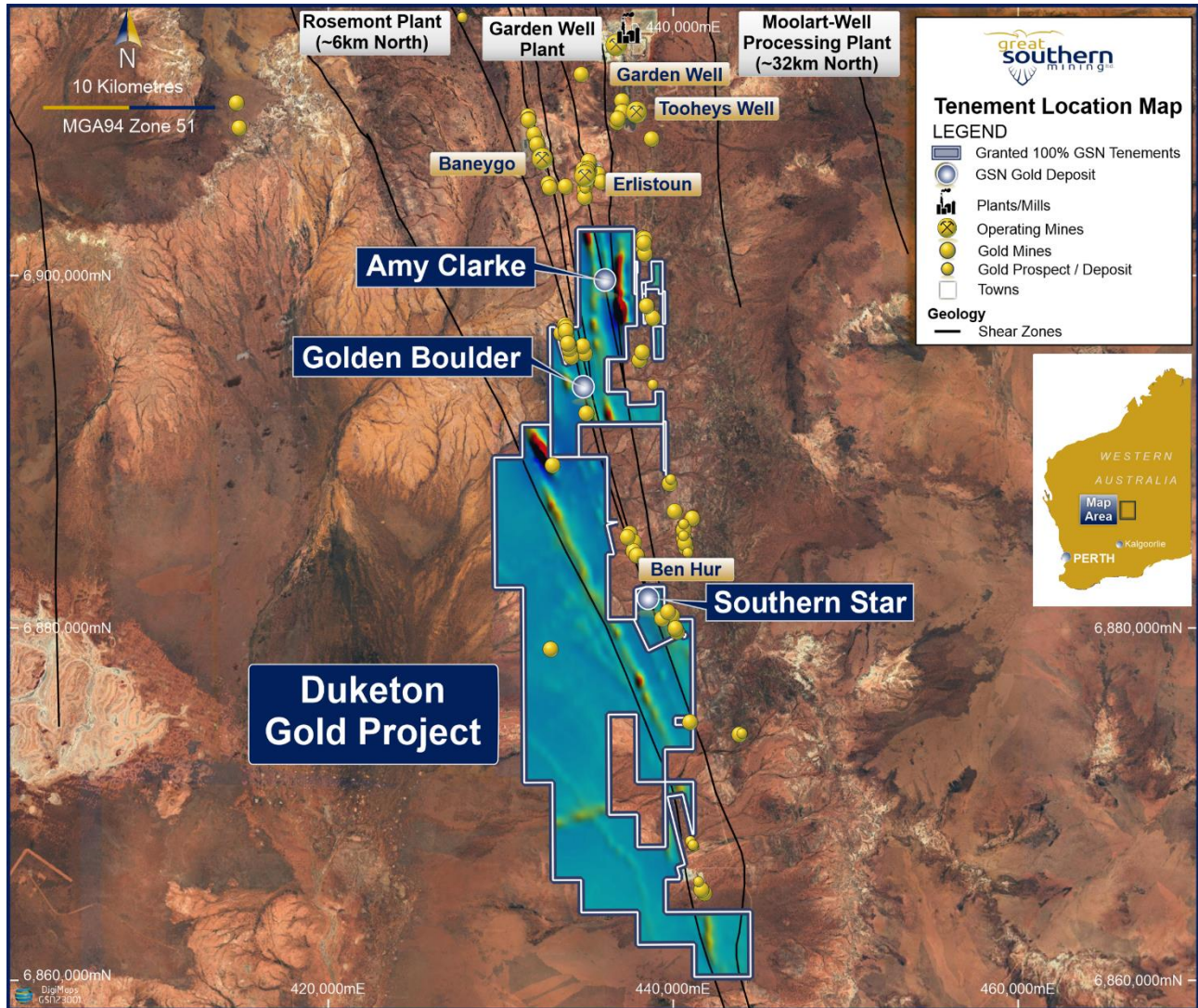


Figure 1. Map of GSN Duketon Gold Project showing existing prospects and known gold occurrences, deposits and mines.

## New High Priority Gold Targets at Duketon Gold Project

GSN has completed a detailed structural geology interpretation of the northern portion of the Duketon Gold Project. This interpretation was completed by consulting structural geology expert and Technical Consultant, Marcus Willson, and compiled using high resolution geophysical data, field mapping, existing drilling and publicly available studies on the Duketon Belt. The foundation to this structural interpretation is an orogenic reconstruction of the belt to define deep seated structures and gold bearing lineaments.

Consequential to this interpretation was the delineation of five new, high priority gold target areas (Figure 2). All of these targets sit along mineralised trends which host gold deposits to the north within Regis Resources' Duketon Gold Mining project. A description of the five targets is provided below:

#### *Structural target 1*

Southern and eastern extension (possible splay) of the Golden Boulder prospect which hosts approximately 3km of historic gold working. Gold bearing reactivated faults (inversion faults) are interpreted to plunge to the south. The onset of a hard iron laterite crust over the southern portion of this target area is interpreted to geochemically mask potential underlying gold anomalism and to have impeded historic gold prospecting. Previous aircore drilling has rarely penetrated through the hard laterite and is therefore considered ineffective. The style of mineralisation is expected to be narrow, high-grade shear and quartz vein hosted gold similar to historic gold workings to the north

#### *Structural Target 2*

Located on the Garden Well Trend. Aeromagnetic images show major north-south structures being offset by later NNW-SSE structures creating an interpreted analogous structural setting to Regis Resources' +3Moz Garden Well gold deposit to the north. Limited historic drilling is considered to be well south of the area of interest, therefore key structures remain untested.

#### *Structural Target 3*

This target is located to the south of the existing Amy Clarke prospect along the Erlistoun Trend (host to the 320koz Erlistoun gold deposit to the north). It is interpreted to be on the hanging wall position to a major, shallow dipping thrust fault with an underlying deep intrusive centre which interacts with multiple north-south and northeast trending structures.

#### *Structural Target 4*

Interpreted to be a "pop-up" structure incorporating hanging wall anticlines and shallow thrust faults with evidence of underlying granites. Historical workings line a ridge running through this area on an interpreted back-thrust fault. There is limited historic drilling and previous surface geochemistry is considered ineffective due to transported cover.

#### *Structural Target 5*

This target is located on the interpreted hanging wall to a shallow thrust, which to the north is understood to be the controlling structure of the Garden Well deposit. Focus in the area will be on cross-cutting NNW-SSE fault structures.



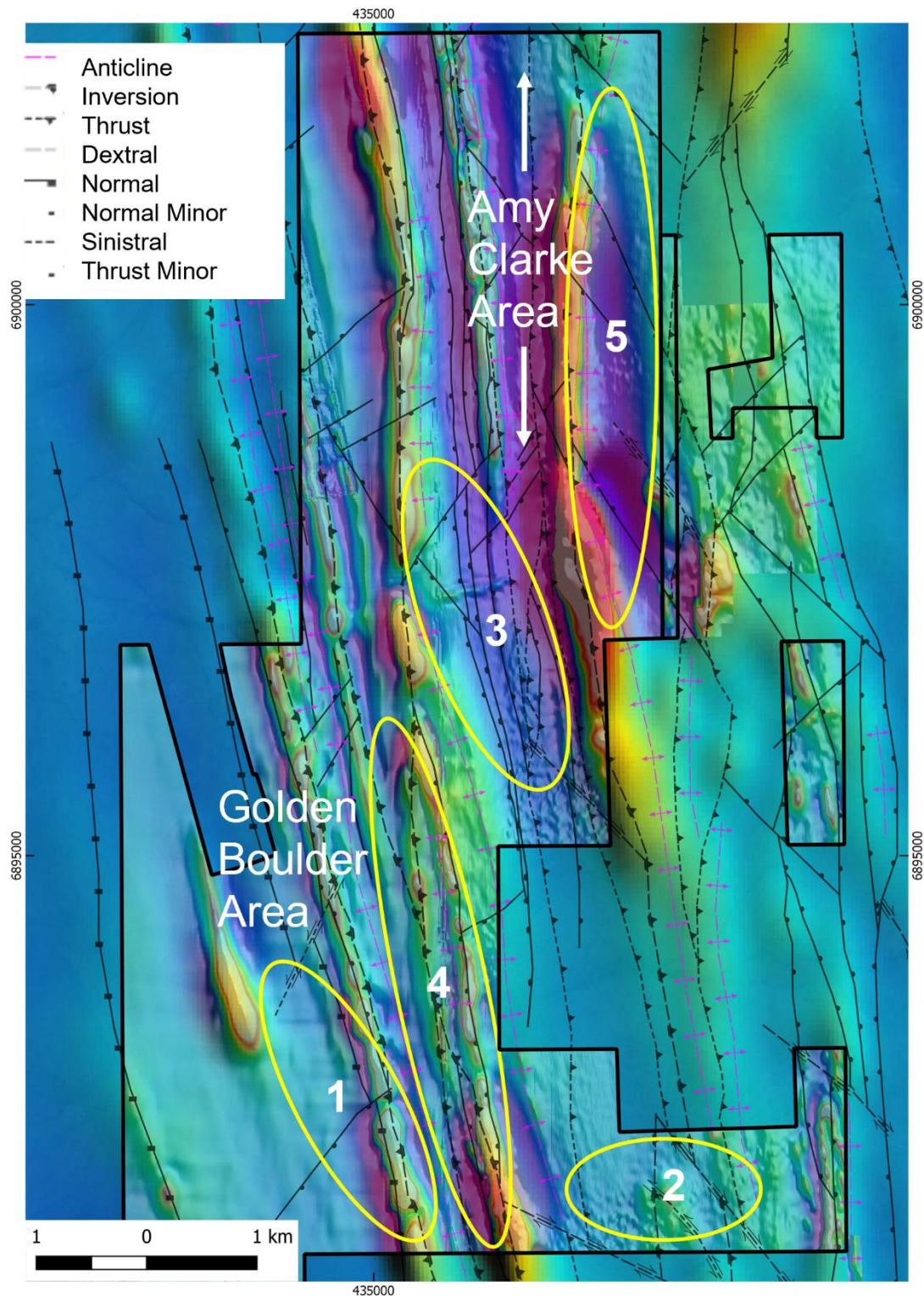


Figure 2. Structural interpretation of GSN's northern tenure incorporating the Golden Boulder and Amy Clarke prospects and five newly identified target areas. Underlain by aeromagnetic imagery.

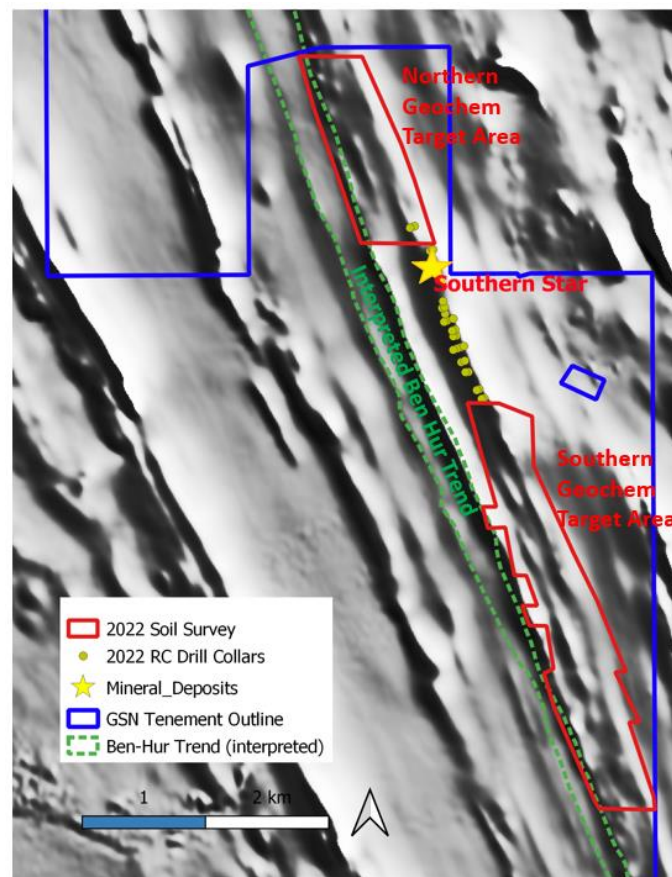
## High Impact Drilling Planned to Commence from March Quarter 2023

GSN is planning an intensive year of drilling at the Duketon Gold Project, commencing in the March quarter of 2023. The previous two years of target generation and early-stage exploration have laid the foundation for high impact drilling on prospects with known high-grade gold mineralisation. Planned drilling programs are detailed below.

### *Southern Star*

Gold mineralisation at the Southern Star prospect has been defined over an 800m strike extent and remains open in nearly every direction. GSN plans to expand upon current mineralisation by testing four key areas including (Figure 3):

- Depth extensions to known mineralisation below intercepts, such as 10m @ 3.1 g/t Au including 3m @ 8.6 g/t Au (21SSRC0012)
- Directly north of the main mineralisation zone where geochemical surveys have delineated four gold anomalies
- A 700m long geochemical anomaly to the south of the current mineralisation zone
- A parallel trend to the west, which GSN interprets to be the trend hosting Regis Resources' Ben Hur deposit just 4km to the north



*Figure 3. Drill target areas to the north, south and on a parallel trend to the existing Southern Star gold mineralisation.*

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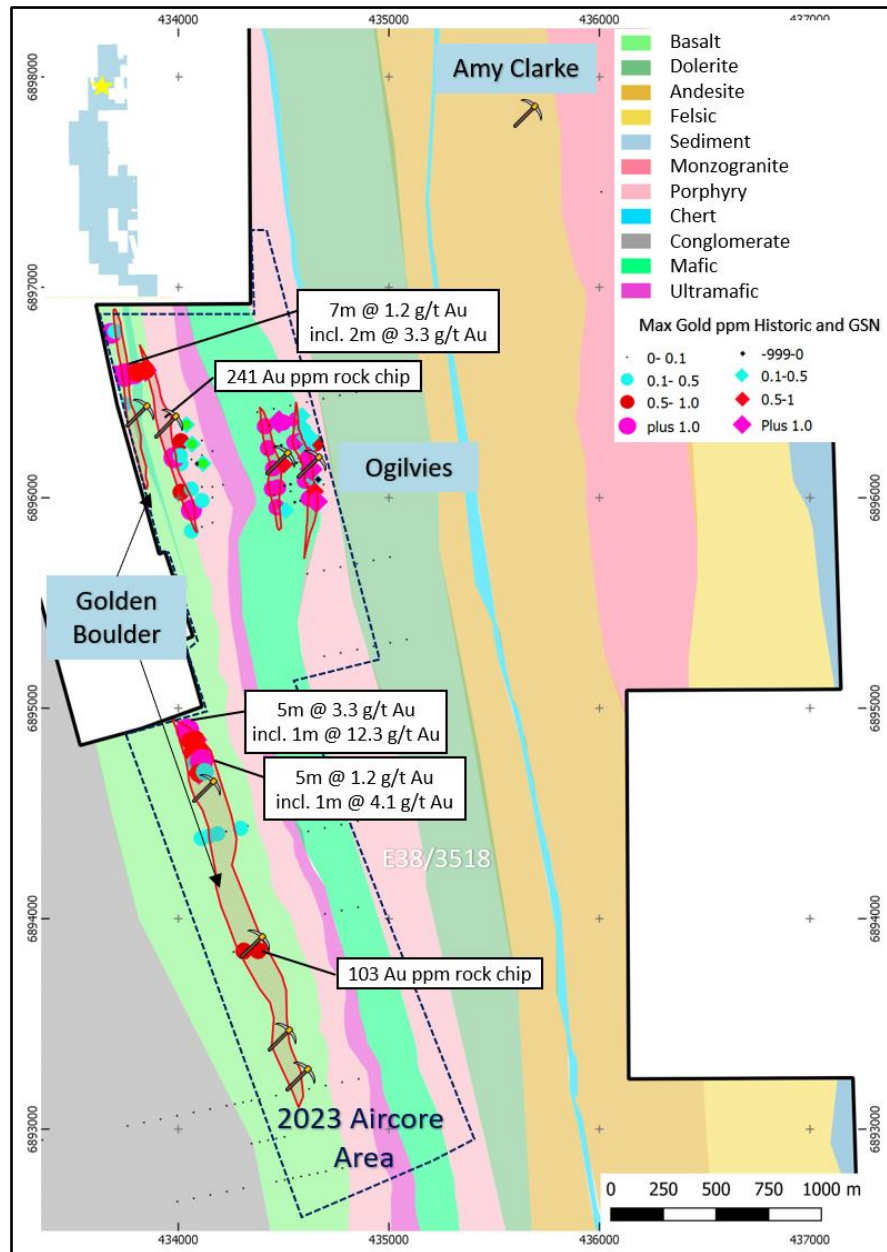


Figure 5. Golden Boulder region highlighting recent significant intersections and planned aircore drill out area.

### Amy Clarke

A maiden aircore drill program was completed in early 2022, which included a best intercept of **5m @ 8.2 g/t gold**, including **4m @ 12.5 g/t gold from 33m** in hole 21ACAC147 (refer to GSN ASX announcement dated 13 April 2022). This program, along with geochemical soil surveys has defined a 5km long gold anomaly. Follow-up RC drilling has been planned around zones of higher grade (proximal to hole 21ACAC147) to gain a better understanding on the controls on gold mineralisation. Further aircore drilling has also been planned over the recently defined 1.4km extension to the gold and pathfinder element anomaly resulting from a geochemical soil survey in 2022 (refer to GSN ASX announcement dated 8 November 2022) (see Figure 6).

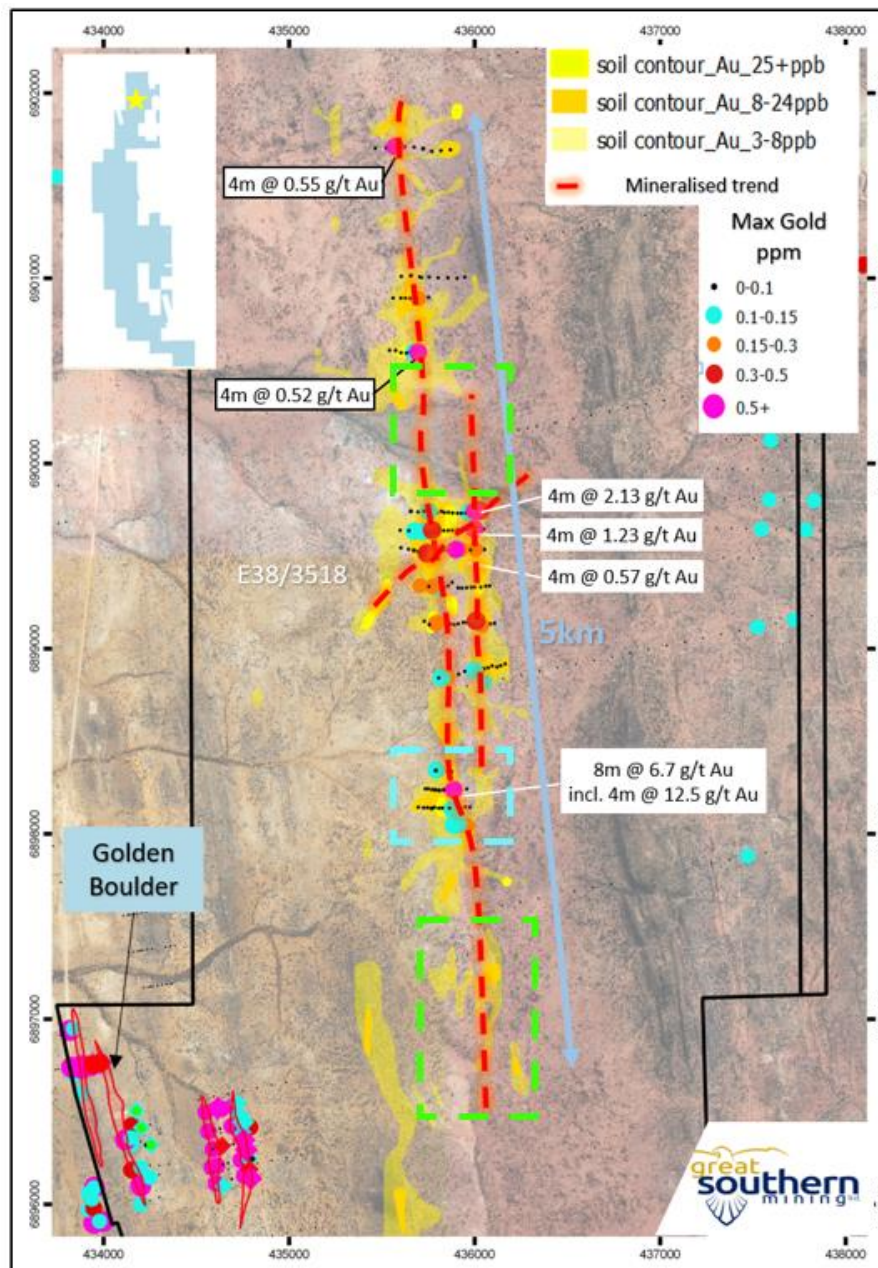


Figure 6. Amy Clarke area showing previous aircore drill intercepts, RC drill target area (dashed blue) and aircore drill target areas (dashed green).

### New Structural Target Areas

New structural targets (the subject of this announcement) will be systematically refined with field mapping and surface geochemical surveys. Targets will then be ranked and drilled tested where warranted.

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



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**About Great Southern Mining**

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

The East Laverton Nickel Project is located 15km east from the town of Laverton in Western Australia where GSN maintains an exploration base to service its significant exploration portfolio in the region, including the Southern Star Gold Deposit.

**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 by Simon Buswell-Smith. Mr. Buswell-Smith is a full-time employee of Great Southern Mining Limited. He has sufficient experience relevant to the style of mineralization and type of deposit under consideration. Mr. Buswell-Smith is a Member of the Australian Institute of Geoscientists and as such, is a Competent Person for the Reporting of Exploration Results, Mineral Resources and Ore Reserves under the JORC Code (2012). Mr. Buswell-Smith consents to the inclusion in the report of the matters based on his information in the form and context in which they occur.*

**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.*