



# FRASER RANGE PROJECT

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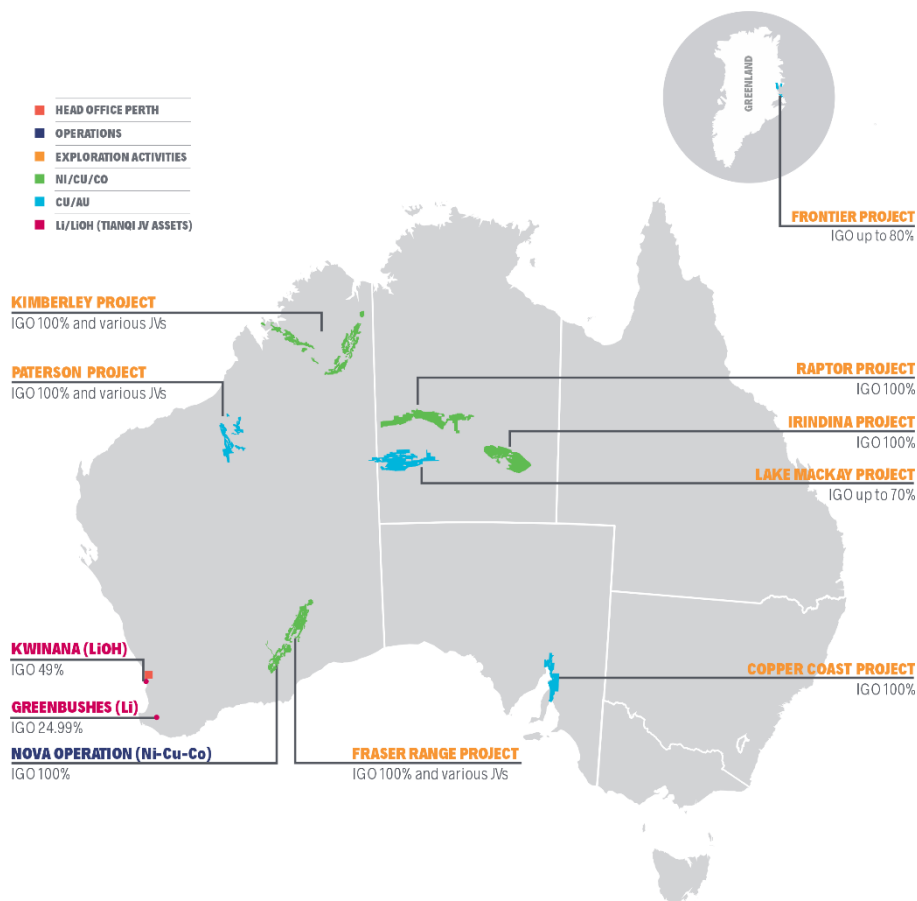
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## INTRODUCTION

To align with IGO's strategic focus on clean energy metals, IGO prioritises the exploration of terranes prospective for magmatic nickel-copper-cobalt sulphide and sediment-hosted copper deposits.

The Company has acquired exploration access to extensive belt-scale land positions across Australia and in Greenland, and all are highly prospective for Tier-1 discoveries (Figure 1).



**Figure 1 - Location Map of IGO's Belt-scale Exploration Projects and Operations**

The Fraser Range Project in Western Australia is a belt-scale project (Figure 1), which is highly prospective for high-value magmatic nickel-copper-cobalt (Ni-Cu-Co) sulphide discoveries. IGO is the dominant landholder in the Fraser Range and owns the Nova Operation, which is mining and processing the Nova-Bollinger Ni-Cu-Co sulphide deposit discovered in 2015 (Figure 2). Since that time, magmatic Ni-Cu-Co sulphide discoveries by other explorers, including Silver Knight (Creasy Group) and Mawson (Legend Mining), have demonstrated the mineral fertility of the area and the potential for the belt to host multiple economic deposits of similar style (Figure 2).

## TECHNICAL OVERVIEW

### Project Overview

IGO entered the Fraser Range belt in 2015 through the acquisition of Sirius Resources' Fraser Range assets, which included the Nova Operation development. Following that transaction IGO commenced the consolidation of exploration ground surrounding Nova and has set about systematically exploring the belt (Figure 2).

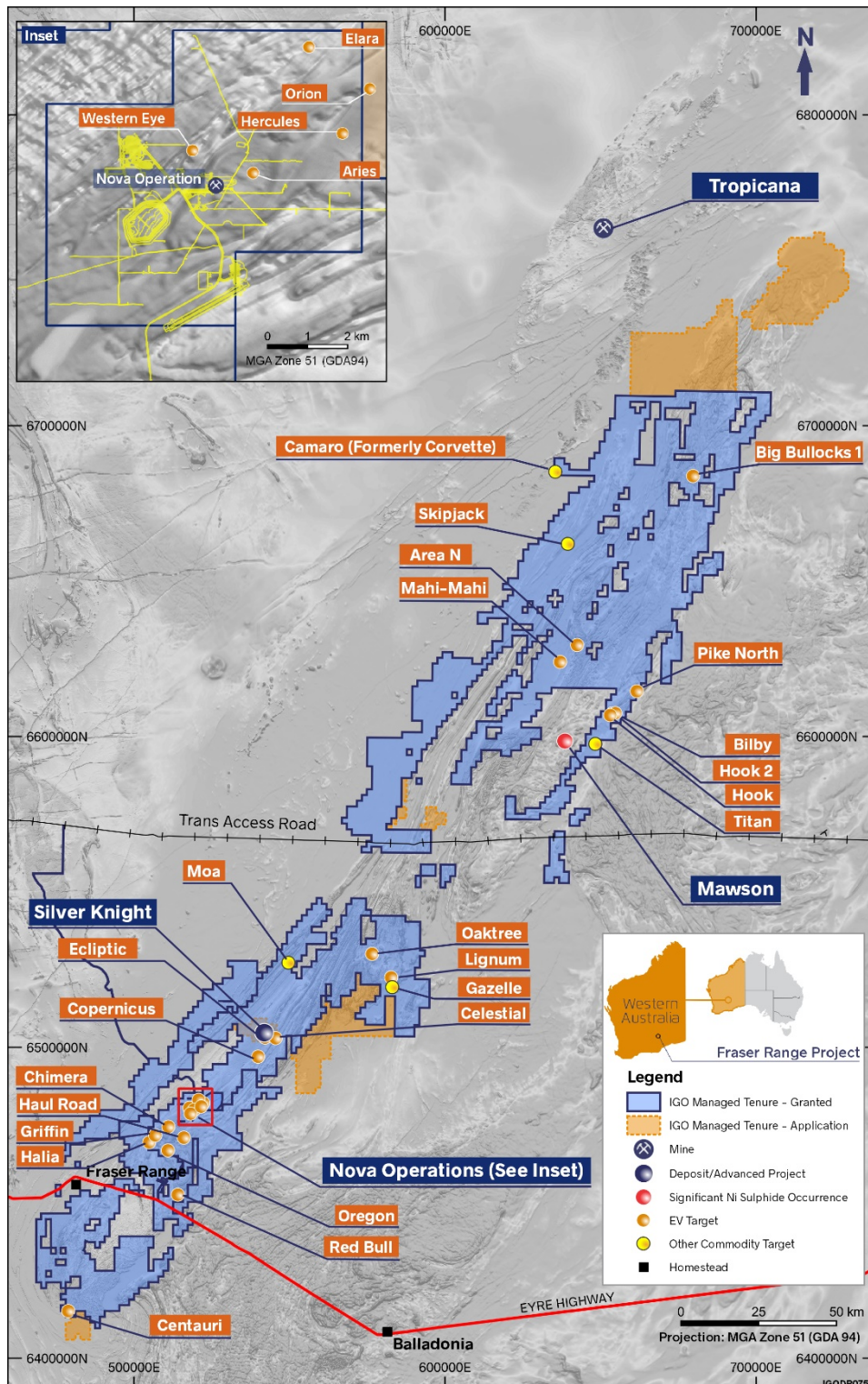


At the time of the Sirius Resources' acquisition, the general understanding of the Fraser Range belt and its prospectivity was nascent with little to no exploration along the approximate 450km of strike extent. The Nova-Bollinger discovery, along with other known magmatic Ni-Cu sulphide occurrences in the Fraser Range, are proof of the fertility of the region for more discoveries, and IGO's exploration team is convinced that this belt should host multiple significant magmatic Ni-Cu sulphide deposits, analogous to the Thompson Belt in Canada.

Nova (Figure 2) was discovered using conventional methods: soil geochemical surveys, air-core (AC) drilling, followed by Moving Loop Electromagnetic (MLEM) surveys and Reverse Circulation (RC) drill testing. The other Ni-Cu sulphide deposit in the Fraser Range, Silver Knight (Figure 2), was discovered using soil geochemical surveys and AC drill testing. Mawson (Figure 2) represents an advanced Ni-Cu sulphide prospect that was discovered under 80 metres of transported cover. The Mawson discovery relied heavily on AC drilling, and Diamond Drill (DD) testing highly anomalous areas defined by AC drilling. IGO considers that these and other nickel prospects in the belt, such as Ecliptic (IGO), Kaon 2 (IGO), Regal (IGO), Victor (IGO), Mammoth (IGO), Chimera (IGO), Octagonal (Legend Mining), Lantern (Galileo Mining), Talbot (IGO), Centauri (IGO), and Crux (IGO) are significant because they demonstrate that the Ni-Cu mineralisation in the Fraser Range is not confined to a specific geological domain, although IGO considers certain domains to be more prospective than others. Importantly, these different discoveries highlight that multiple, large, translithospheric faults have acted as conduits for Ni-Cu-bearing mafic and ultramafic magmas and that the rare magmatic processes that are required to form massive Ni-Cu sulphide deposits have occurred along the entire length of the Fraser Range belt.

IGO has made significant progress in understanding the magmatic Ni-Cu sulphide settings in the Fraser Range having completed extensive regional geophysical and geochemical screening of some 15,000 km<sup>2</sup> of tenure (Figure 2). IGO's access to most of the known Ni-Cu sulphide mineralisation occurrences is through various joint ventures (JVs) and these have enabled IGO to determine that mafic-ultramafic (MUM) intrusions cluster in structurally and geologically complex areas that coincide with iron sulphide, carbon, and carbonate-bearing metasediments. IGO considers that these features are key to understanding where the next major deposit will be found. With over 400,000m of AC and 120,000m of RC and diamond drilling completed since 2017, IGO have found that identifying MUM intrusions is only one part of the key to discovery.

Through IGO's exploration efforts in the Fraser Range, hundreds of MUM intrusions have been identified. Many of these contain trace amounts of Ni-Cu sulphides, but only a few contain significant Ni-Cu sulphides, and even fewer host potentially economic grades of Ni-Cu mineralisation. To identify and prioritise exploration targets, IGO has devised an in-house geochemical screening tool, which is based on key chemical element ratios, and we call the 'Mafic Prospectivity Index' (MPI). The MPI identifies the most prospective MUM intrusions in the Fraser Range by defining levels of crustal contamination, Ni and Cu fertility and intrusions that have chemical composition most like the Nova intrusion, as opposed to other suites present in the Fraser Range.



**Figure 2 - IGO's Fraser Range tenement package with High Priority FY22 Stage 4 and above Prospects/Targets from the Fraser Range target pipeline (Figure 3)**

Compelling geochemical, geological, and geophysical targets are then screened by MLEM surveys to further prioritise exploration targets.

IGO is constantly adding to and reinterpreting its pipeline of targets in the Fraser Range Project (Figure 3). Early-stage anomalies are tested by a variety of baseline exploration methods (most notably, ground-based MLEM and/or infill AC drilling) before being prioritised for RC and/or DD drill testing, usually with follow-up down-hole electromagnetic (DHEM) surveys. The IGO pipeline in the Fraser

Range has clear stage gates, and negative geophysical, geological, or geochemical results during follow-up work, results in the downgrading of targets, some of which may be reassigned for further assessment or dropped from the portfolio entirely (Figure 3). Conversely, positive results may result in targets being upgraded and they will advance along the pipeline.

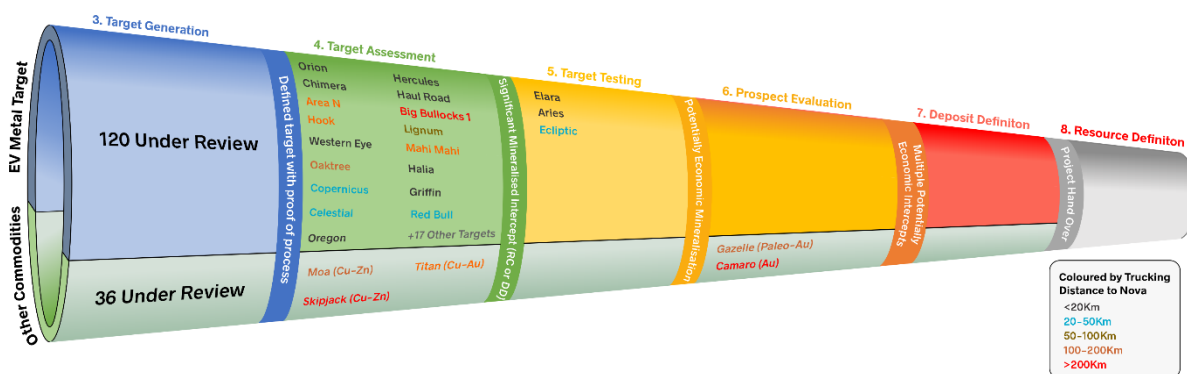


Figure 3 - The Fraser Range target pipeline. Names of high priority FY22 targets are shown in their respective stages

Many of the targets listed in Figure 3 are grouped into Priority Target Areas. The Priority Target Areas that have been tested within the past 12 months or will be tested during the next 12 months include:

- Nova Near Mine
- Southern Hills
- Bunningonia
- Gazelle
- Waddy Eye
- Heatwave
- Central Western
- Kanandah

### Nova Near Mine

The Nova Near Mine portfolio includes the following tenements: M28/376, E28/2177, E28/1932, and E69/2989, which fall within 25 km of IGO's Nova Operation (Figure 4) and the greater near-mine project area incorporates additional tenements surrounding the mine (i.e., E28/1630, E28/1714, E28/1724, E28/2563, E28/2615, E28/2770, E28/2771, E28/2772, E63/1913, E69/3070, E69/3645, E69/3646, E69/3647).



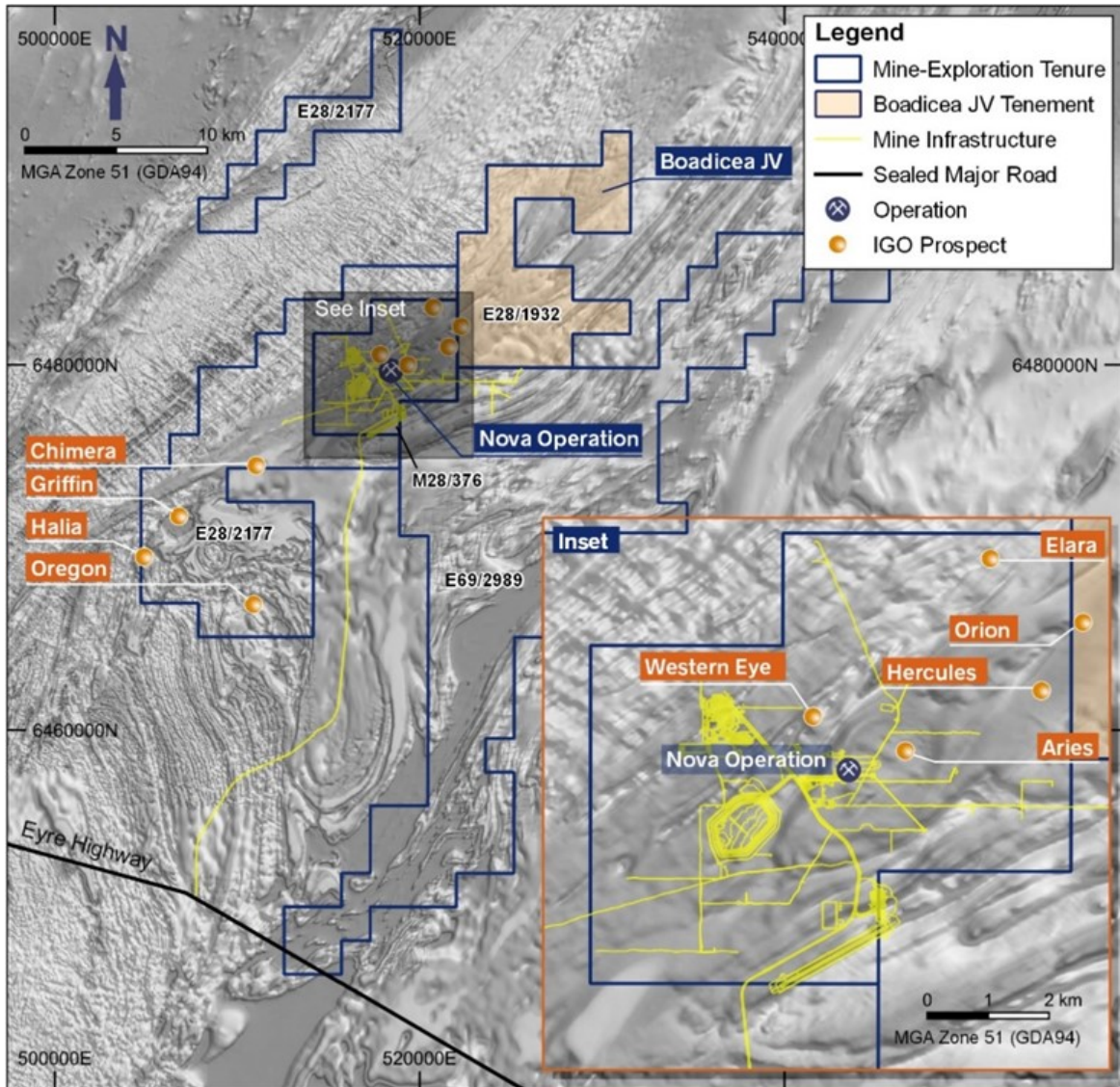
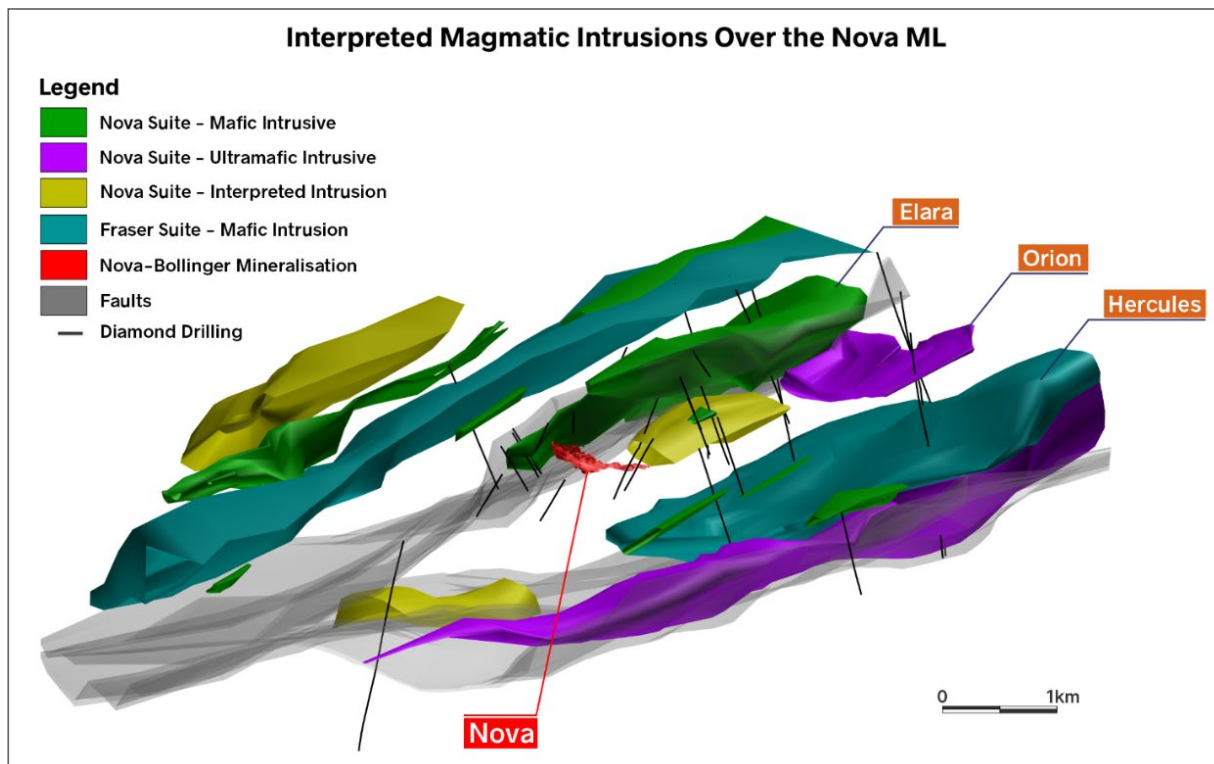


Figure 4 - Near Mine Target Map

A discovery in this area would likely be well within feasible ore trucking distance to IGO's Nova Operation. Nova Near Mine targets have been generated from datasets that include soil geochemistry, AC drilling, MLEM, DHEM, 3D seismic surveys, and potential field 3D inversions. IGO has prepared a robust 3D model of the Nova Mining Lease and its immediate surrounds from the 3D seismic dataset and deep DD drilling. This modelling has identified a series of stacked, fertile, MUM intrusions within a structurally complicated architecture (Figure 5) that would have been impossible to identify using conventional near surface exploration methods.

Drilling of larger intrusions identified in the 3D seismic dataset, reveals they have textural and compositional similarities to the Nova Upper Intrusion, which is the larger intrusion that sits above and is linked to the smaller mineralised Nova Lower Intrusion. These larger intrusions host minor to blebby



**Figure 5 - The Nova Near Mine 3D intrusion model (looking downward and towards the north)**

Ni-Cu sulphides and are likely linked by smaller intrusions. These smaller linking intrusions are the targets but are difficult to identify in the seismic data. Identifying targets such as Elara, Hercules, Zeus, Double Dipper, Phoenix, Western Eye and more recently Orion from the 3D seismic data justifies a sustained, deep exploration effort in this area.

Further afield, IGO have generated several targets using soils, AC drilling, MLEM, and potential field inversions. Some of the most prospective current targets are the Chimera, Halia, Griffin, and Oregon prospects in the Near Mine tenure (Figure 4).

New JVs and option agreements adjacent to the Nova Mining Lease, including the recently concluded transaction with Boadicea Resources (BOA) and Matsa Resources (MAT), ensure that IGO have a pipeline of near mine targets for the foreseeable future.

### **Orion Prospect**

The Orion Prospect is within 10 km of the Nova Operation (Figure 4) and is a highly prospective polyphase sulphide-bearing MUM intrusion that exhibits textural and lithological features indicative of a productive Ni-Cu sulphide hosting chonolith (worm-like intrusion). The chonolith intrusion has been intercepted in multiple DD holes that constrain the morphology of the intrusion (Figure 8) over >1,500 m in strike (Figure 6) and from ~80 m to ~250 m in diameter (e.g. Figure 8 and Figure 9). Modelling of drilling and 3D seismic data shows the chonolith following a fold hinge. Moving out from the 3D seismic cube and onto the BOA JV tenure, IGO geologists are using structural data collected from the drill core to extrapolate the trend of the intrusion.

The Orion intrusion is both laterally and vertically zoned comprising variably contaminated gabbro-norite, olivine-bearing websterite and thin cumulate norites. Blebby, multiphase magmatic Ni-Cu sulphides (pyrrhotite-pentlandite-chalcopyrite) are present in the intrusion (Figure 7) with sulphide content increasing towards the northeast. The sulphides are concentrated on internal contacts and at the base of the intrusion where stringers are present. The observed lateral zonation in the chonolith is accompanied by increases in nickel and copper sulphide tenors (grade of the sulphides) that suggest that the intrusion is becoming more dynamic and therefore more prospective for Ni-Cu mineralised systems towards the northeast, and onto the Boadicea Resources JV licence (E28/1932). A MLEM survey is currently being conducted over the interpreted northeast extension of the Orion Intrusion on E28/1932, and results from this and from interpretations from nearby drilling data will guide follow-up work on the Orion Prospect in the current financial year (FY22).

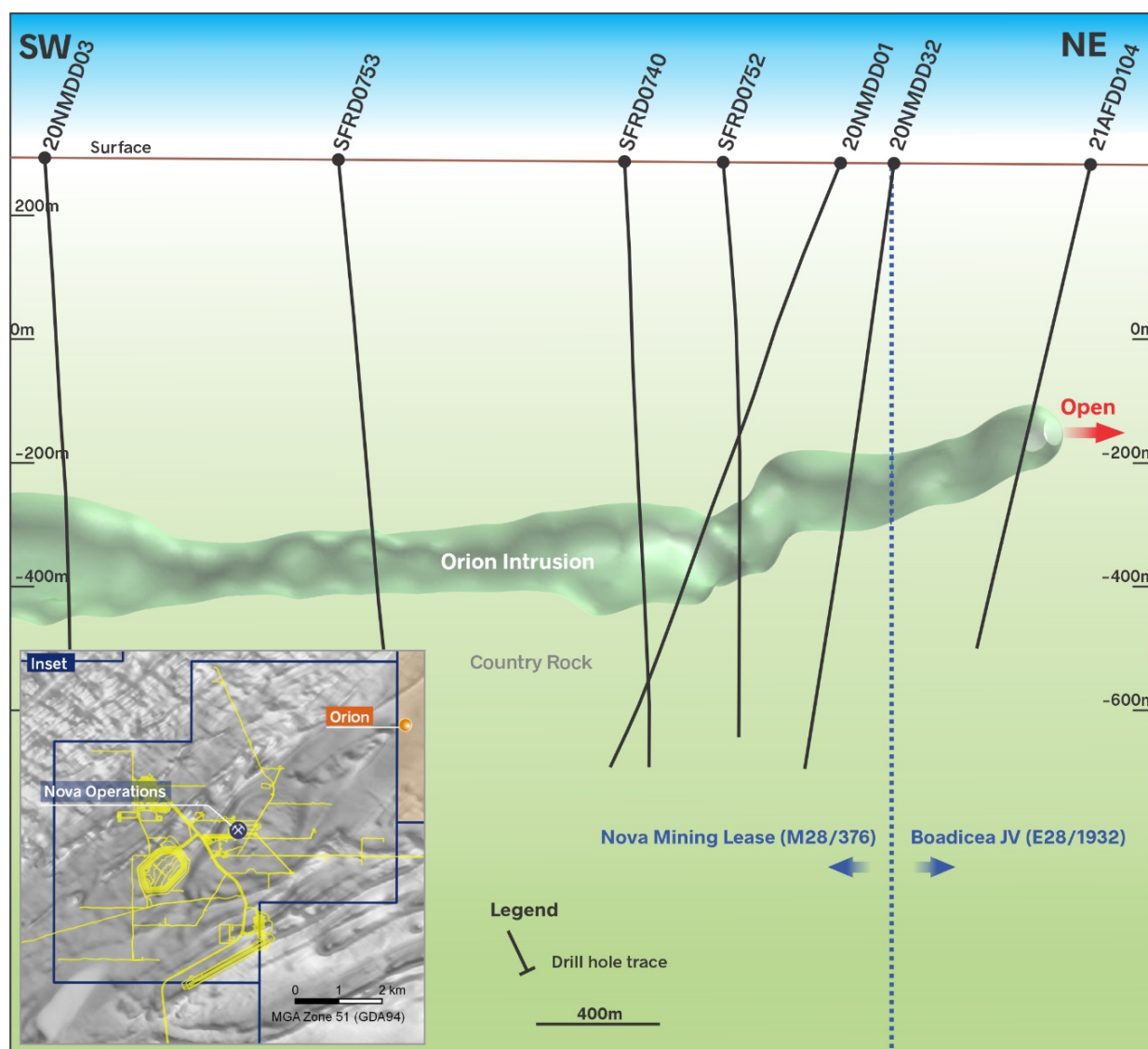
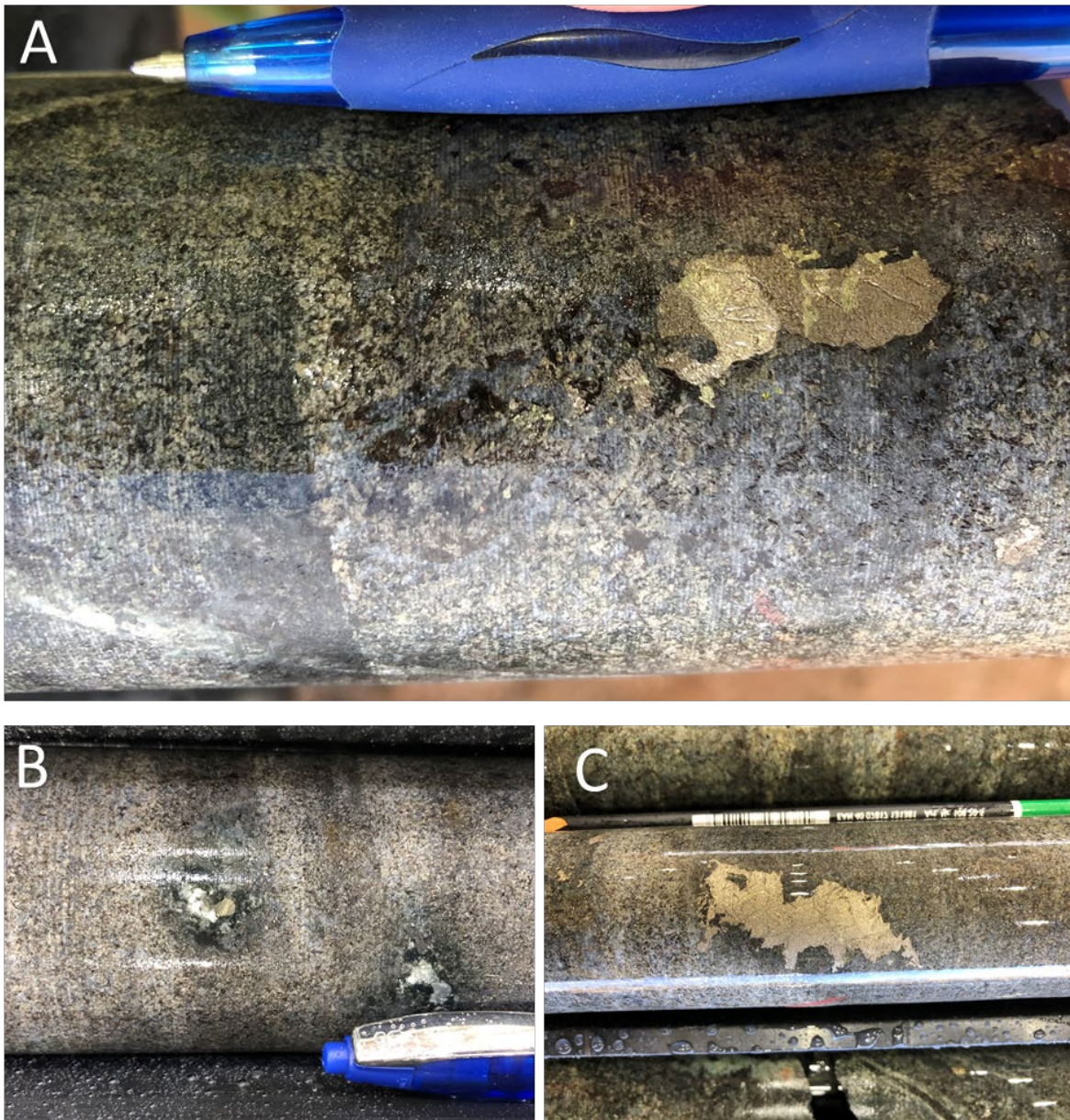
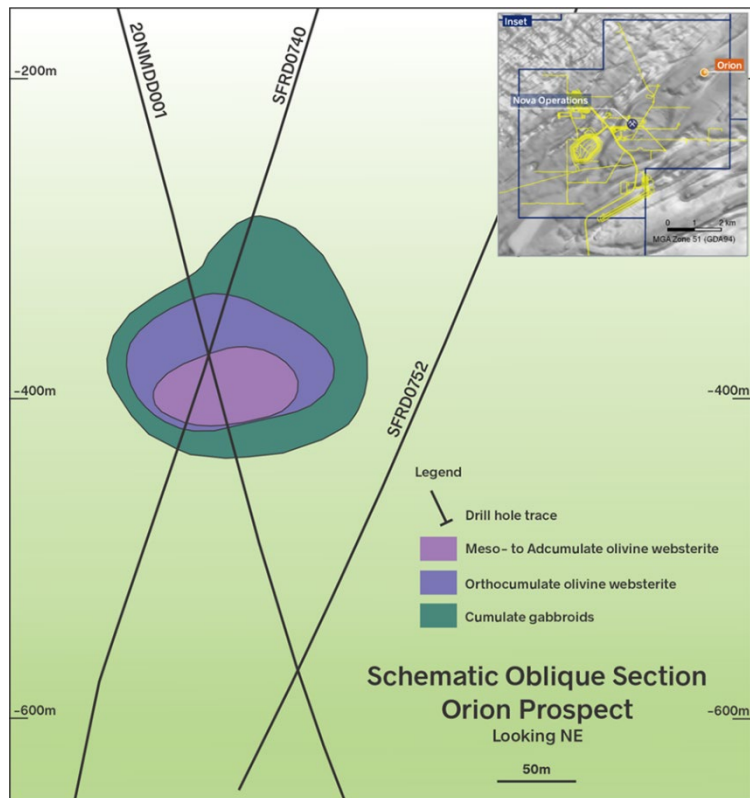


Figure 6 - Simplified geological long section of the Orion Chonolith

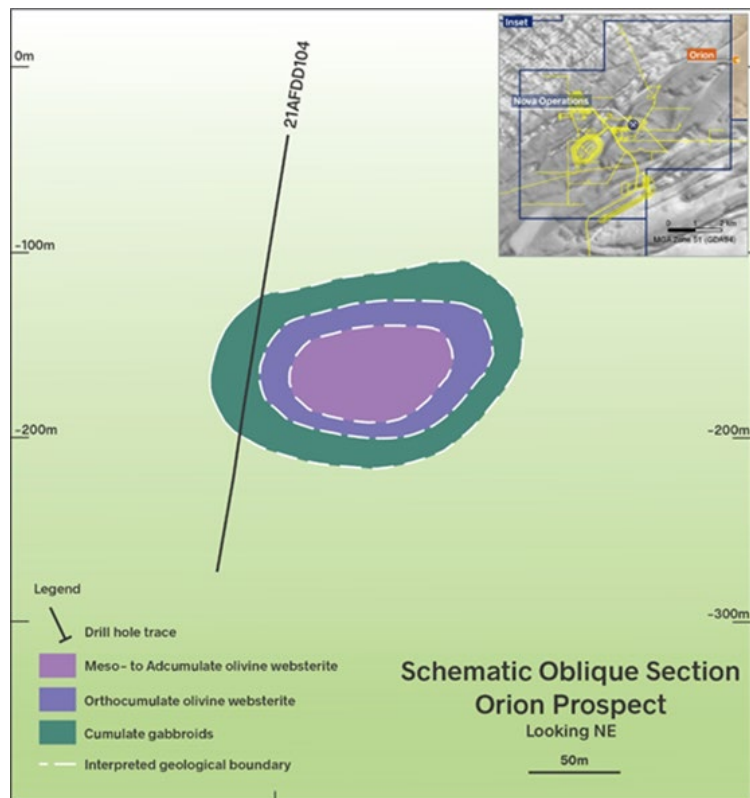




**Figure 7 - Magmatic sulphide textures at the Orion Prospect. A) Coarse-grained cumulate olivine gabbro-norite with high-tenor Ni-Cu sulphides at 752m (core size NQ). B) Fine to medium-grained cumulate olivine norite with moderate-tenor Ni-Cu sulphides associated (core size NQ).**



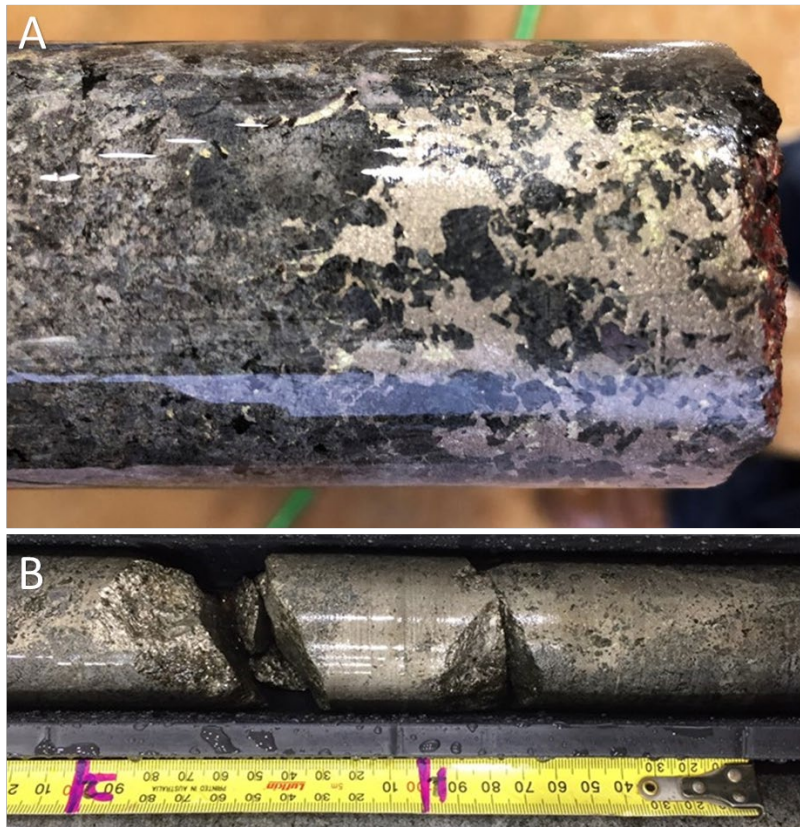
**Figure 8 - Schematic cross section through the Orion chonolith defined by Drillholes 20NMDD001, SFRD0740, and SFRD0752**



**Figure 9 - Interpreted section through the Orion chonolith at 21AFDD104**







**Figure 11 - Magmatic sulphide textures at the Hercules (A) and Elara (B) prospects. A) Semi-massive Ni-Cu sulphides in very coarse-grained olivine gabbro-norite at 1,157m (core size NQ). B) Semi-massive Ni-Cu sulphides in coarse-grained olivine websterite at 670m (core size NQ).**

### **Aries Prospect**

The Aries Prospect (Figure 4 and Figure 10) is a residual target within the Nova Eye, where sporadic historical intercepts of narrow (<1m) massive Ni-Cu sulphides remain open in some directions. A data review is required to assess whether the extensive MLEM coverage over this area has sufficiently screened the prospect, or whether upside remains.

### **Western Eye Prospect**

The Western Eye (Figure 4 and Figure 10) was identified in the 3D seismic dataset as a distinct eye-feature west of the Nova Eye, and first drilled in 2020. Initial drilling encountered a highly prospective Ni-Cu sulphide-bearing MUM intrusion that exhibits textural and lithological features indicative of a productive Ni-Cu sulphide hosting intrusion (Figure 12). Follow-up holes based on the 3D seismic dataset could not trace the Western Eye intrusion. In FY22, a drill hole is planned to scissor the original Western Eye intercept and use structural data from the intrusion and country rock to define the geometry of the intrusion, so it can be further targeted.





**Figure 12 - Magmatic textures at the Western Eye Prospect. A) Blebby Fe-Ni-Cu sulphides in coarse-grained olivine websterite at 275m (core size HQ). B) Olivine websterite, with large, crystallised carbonate-silica vesicles at 330m (core size NQ).**

### Chimera Prospect

The Chimera Prospect (Figure 4) is a 3.0 km x 0.8 km MUM intrusive complex (mapped by AC drilling) located 9 km to the southwest of IGO's Nova Operation. It was discovered using AC drill-testing of a regional aeromagnetic target and is characterised by highly anomalous Ni and Cu concentrations that are like the levels observed in the Nova Intrusive Complex, prior to the discovery of the Nova-Bollinger Deposit.

In 4Q21, a single deep stratigraphic hole was collared into an anomalous portion of the intrusion defined by AC drilling (Figure 13) and targeting at depth the interpreted deepest portion of a doubly plunging synform ('eye feature' seen in regional aeromagnetics). The deep stratigraphic hole was drilled to a total depth of 1,222m, with several intrusions encountered that exhibit textural and lithological features IGO considers indicative of productive Ni-Cu sulphide bearing intrusions. Disseminated to blebby magmatic Ni-Cu sulphides were observed throughout (e.g. Figure 14A, B), as were minor occurrences of vein sulphides (e.g. Figure 14C, D), and narrow (<10cm) internal contact-style semi-massive sulphides (e.g. Figure 14E, F). Significantly, at approximately 1,020m, a small interval (~10cm) of semi-massive Ni-Cu sulphides was observed in a felsic pegmatite (Figure 14G). Similar relationships are common at the Nova Mine. Sulphide tenors visually appear to have moderate to good Ni and Cu tenor, with full assays pending. No sulphides of economic significance were encountered in this hole, nor suggested nearby (<150m) from DHEM logging.

The results from the deep stratigraphic hole at Chimera are highly encouraging with multiple prospective intrusions being encountered with sulphide textures suggestive of local trapping (Figure 14C, D, E, F,

G). Most occur beyond the depth of investigation of MLEM surveys conducted over Chimera, with local conductive cover hampering this effort. Follow-up drilling is planned in FY22 targeting potential structural trap sites and building an understanding of the prospects geology.

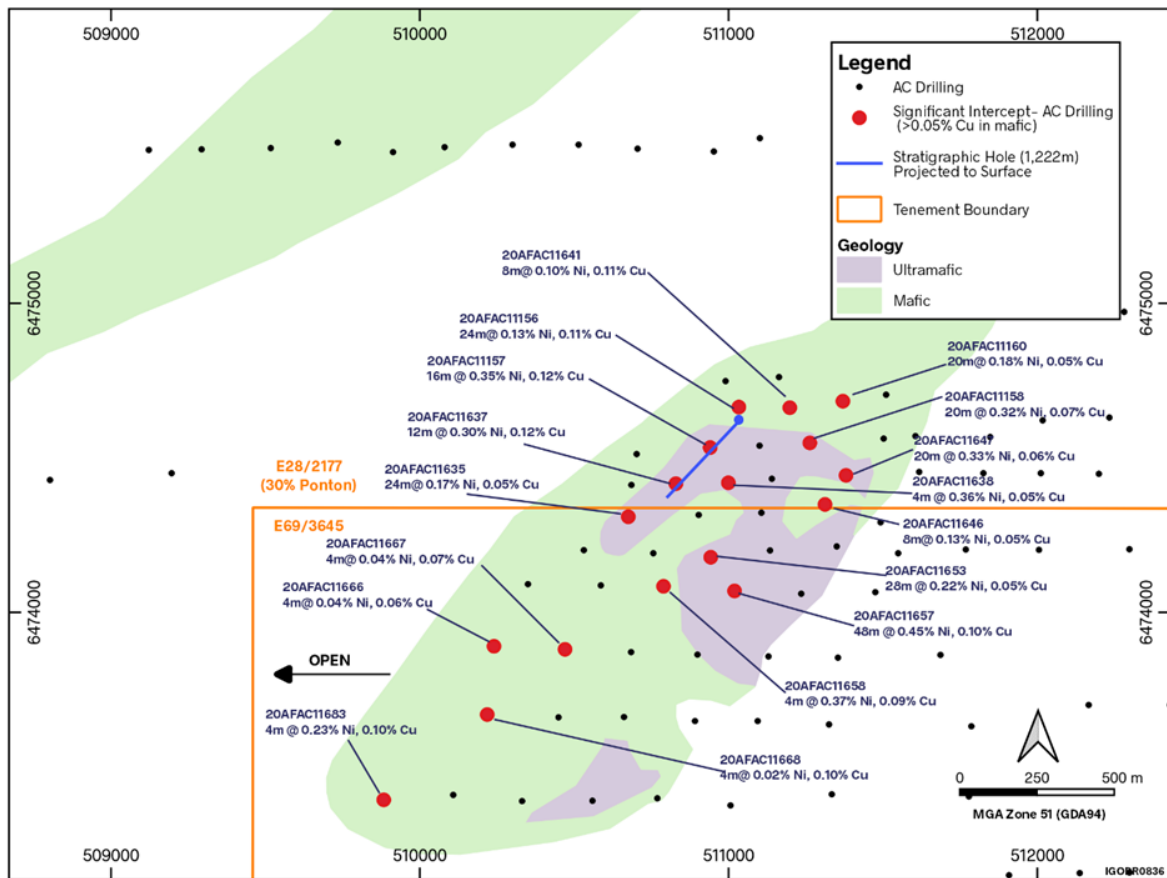
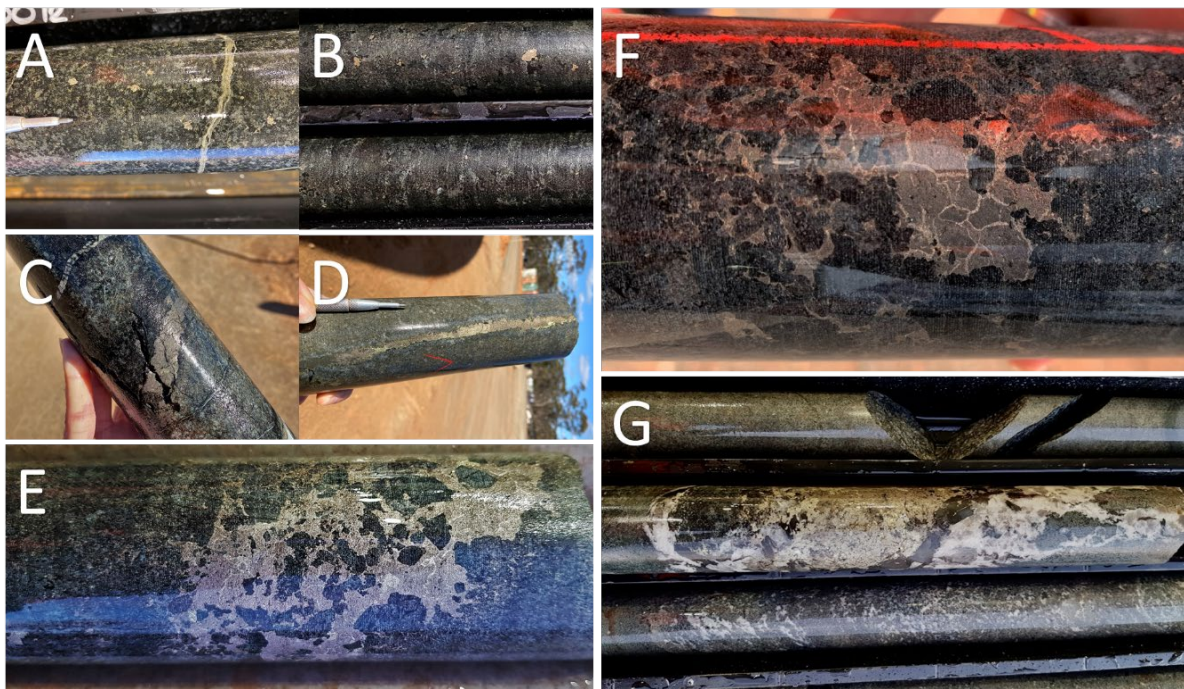


Figure 13 - Plan map of the bottom-of-hole AC geology of the Chimera Prospect, projected to the surface. Disseminated sulphides are observed throughout, however significant intercepts are highlighted by red circles that represent AC drill holes.

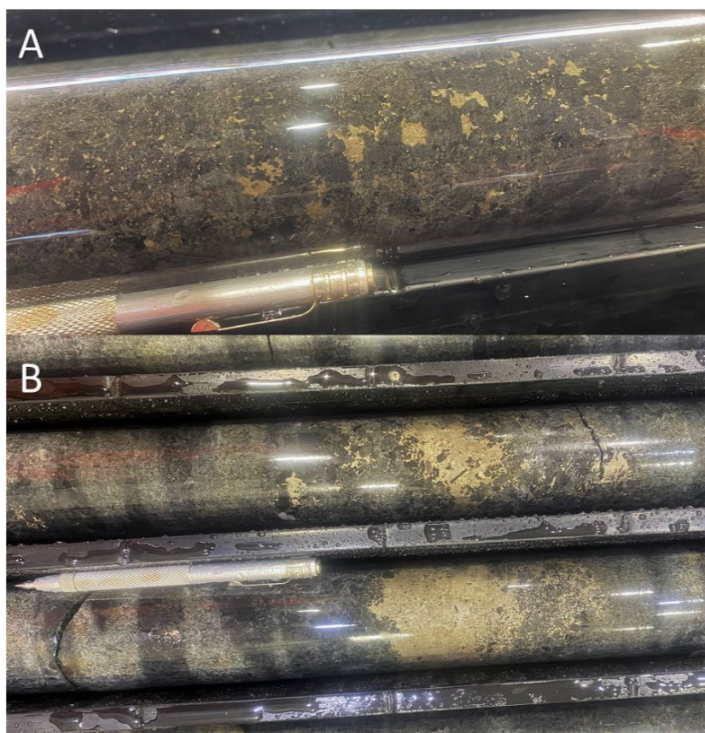




**Figure 14 - Magmatic sulphide textures at the Chimera Prospect from the deep stratigraphic DD hole.** A) Mesocumulate olivine websterite with blebby Ni-Cu sulphides at 65m (core size HQ). B) Feldspathic Iherzolite with blebby Ni-Cu sulphides at 402m (core size NQ). C) Vein Ni-Cu sulphides in mesocumulate olivine websterite at 89m (core size HQ). D) Vein sulphides in mesocumulate olivine websterite at 191m (core size HQ). E) Semi-massive Ni-Cu sulphides with development of loop-texture (chalcopyrite &/or pentlandite rimming pyrrhotite) in mesocumulate olivine websterite at 462m (core size NQ). F) Semi-massive Ni-Cu sulphides with well-developed loop-texture in orthocumulte olivine websterite at 582m. G) Semi-massive Ni-Cu sulphides with loop-texture (partially obscured by retrograde alteration) in quartz-feldspar-biotite pegmatite at 1,020m (core size NQ).

### Griffin & Halia Prospects

The Griffin and Halia Prospects (Figure 4) are MUM intrusive complexes mapped by AC drilling and field mapping with dimensions of 3.0 x 1.8 km and 0.8 x 0.5 km, respectively. AC drilling highlighted discrete zones in both that contain highly anomalous levels of Ni and Cu. The Griffin and Halia intrusions are presently interpreted to connect to the Chimera Intrusion to their northeast. Targets at both prospects have been defined from the integration and interpretation of potential field data, surface mapping and AC drilling defined geology. Both targets are scheduled to be tested in FY22 and occur within 20 km of the Nova Operation (Figure 4).



**Figure 15 - Magmatic sulphide textures at the Haul Road Prospect. A) Cumulate olivine gabbronorite with blebby Fe-Cu>Ni sulphides at 797m. B) Semi-massive Fe-Cu>Ni sulphides in cumulate olivine gabbronorite at 577m.**

## Haul Road Prospect

The Haul Road Prospect (Figure 2) is a MUM intrusive complex that is interpreted to represent a linking structure between two larger intrusions. A single deep (~844m) DD hole was drilled under an anomalous area of Ni and Cu in historical AC holes and targeting an interpreted linking structure between intrusions from potential field inversions. The DD hole stayed within the targeted MUM intrusion for the entire length of the hole. Disseminated to blebby Fe-Cu>Ni magmatic sulphides were observed in parts of the hole (e.g. Figure 15A), as were local intervals of semi-massive Fe-Cu>Ni sulphides (e.g. Figure 15B). Sulphide tenors visually appear to be low; however, assays are pending. No sulphides of economic significance were encountered in this hole or suggested nearby (<250m) from DHEM logging. Initial results suggest further work may be required.

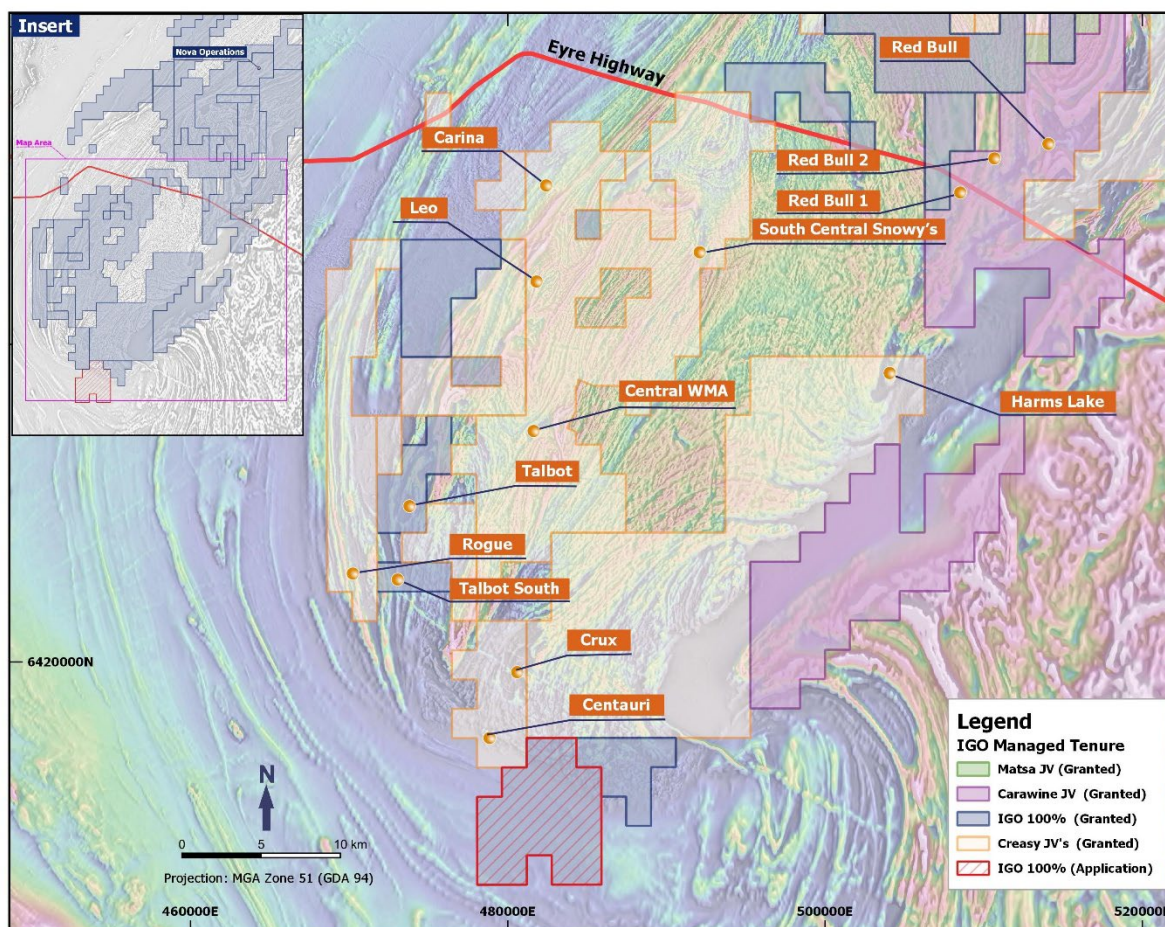
## Oregon Prospect

The Oregon Prospect (Figure 2) was identified by a MLEM survey, following up MUM lithologies intersected by AC drilling. A single conductor (1,500 Siemens conductance) was modelled underneath MUM rocks that contained minor Ni-Cu sulphides. A DD hole tested this target in 4Q21. A thick interval of mafic intrusion was encountered (dominantly gabbronorite), with minor thin intervals of conductive, sedimentary iron formation (pyrrhotite-graphite-magnetite) that were intersected at the modelled depth of the conductor and at a higher interval in the hole, and likely explain the original anomaly. DHEM logging will be completed in FY22 to confirm if these conductive metasediments are the source of the original MLEM anomaly.

## Southern Hills Area

The Southern Hills Area is south of the Eyre Highway, 35 km south-southwest of the Nova Operation (Figure 16). The area has had almost no exploration for two years while IGO negotiated access with local landowners.





**Figure 16 - A greyscale TMI RTP 1VD aeromagnetics underlying a colour TMI aeromagnetic image, displaying IGOs tenure within the Southern Hills area and showing some early-stage anomalies, advanced targets, and selected historical prospects that require follow-up in the area.**

The area is considered highly prospective for magmatic Ni-Cu sulphide mineralisation with several MUM intrusions known in the area. Several airborne electromagnetic (AEM) and soil geochemistry anomalies identified prior to 2018 require follow-up by on-ground MLEM surveying and AC drilling, with some of this work having commenced this in 4Q21. There are more than 30 geophysical or geochemical anomalies, including AEM anomalies that require follow-up work.

### Red Bull Prospect

The Red Bull Prospect occurs to the east of Red Bull 1 and 2 prospects (Figure 16) and is approximately 30 km south of the Nova Operation. Identified by MLEM surveys, three conductors are present in the Red Bull area. Red Bull A conductor (3,500 S) was historically tested with sedimentary sulphides and graphite explaining Red Bull A. The Red Bull B conductor (2,500 S) is located 1.7 km south of Red Bull A and is untested. Red Bull C (5,200 S) is located 1.7 km southwest of Red Bull B and is also untested. Potential field inversions and nearby intersections of MUM intrusions with minor Ni-Cu sulphides, suggests it is entirely permissible that the Red Bull B and C targets represent magmatic Ni-Cu massive sulphides at depth, and both are scheduled to be tested in FY22.

### Crux, Talbot, Talbot South & Centauri Prospects

The Crux, Talbot, Talbot South, and Centauri prospects (Figure 16) are all MUM intrusive suites that were extensively drill tested by previous exploration companies. Deep DD holes and RC drill holes



intersected rock types very similar to those from Nova-Bollinger, but massive sulphide accumulations remained elusive despite some encouraging intersections.

MLEM and DHEM surveys completed by the previous explorers failed to identify any conductor that could represent massive sulphide accumulation, but IGO's in-house modelling suggests that the depth of investigation was <400 m below surface. IGO intends to revisit these prospects in FY22 with a MLEM system capable of detecting conductive bodies up to 1,000m below the surface. Any significant conductors detected by this survey will be tested with diamond drilling.

## Bunningonia Area

Bunningonia covers a large area of the Fraser Range from the Trans Australian Rail Line to approximately 35 km northeast of the Nova Operation. The project area is highly prospective and hosts MUM intrusions with Ni-Cu mineralisation (such as Silver Knight<sup>1</sup>, Lantern<sup>2</sup> and Mammoth<sup>3</sup>), and Volcanogenic Massive Sulphide (VMS) mineralisation such as Andromeda<sup>4</sup>.

## Ecliptic Prospect

The Ecliptic Prospect (Figure 2) is located 33 km to the northeast of IGO's Nova Operation and 1.5 km south of the Silver Knight deposit. Multiple MUM intrusions that are geologically and geochemically comparable to the intrusions that host the Nova-Bollinger and Silver Knight deposits have been intersected during AC, RC, and DD campaigns. Several of these intrusions host polyphase magmatic sulphides typical of those found proximal to massive sulphide mineralisation (Figure 17). These intrusions are interpreted to be related to the same intrusive event that formed the Silver Knight deposit. MLEM and DHEM surveys at Ecliptic have so far failed to identify any large-scale conductors consistent with massive sulphides. However, the mineralisation identified to-date does indicate that sulphide accumulations at Ecliptic have a high Ni and Cu tenor, this suggests that small pods of massive sulphide mineralisation and/or larger accumulations of non-massive sulphide mineralisation could potentially be economically viable if found in sufficient volume and at shallow to modest depths.

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<sup>1</sup> Refer to Mineralisation Report published by Great Southern Nickel Pty Ltd in support of a Mining Lease Application

<sup>2</sup> ASX Announcement, 17 March 2020, Galileo Mining - "Nickel Sulphide Discovery at Lantern Prospect, Fraser Range"

<sup>3</sup> ASX Announcement, 12 December 2013, Classic Minerals - "New Nickel-Copper Mineralised Horizon Discovered on Fraser Range"

<sup>4</sup> Refer ASX Release: 20 February 2019, IGO - "Annual Mineral Resource and Ore Reserve Statement"

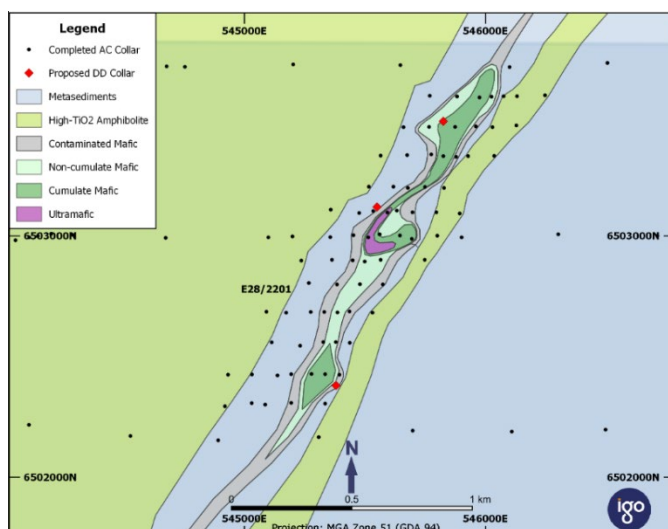




**Figure 17 - Magmatic sulphide textures at the Ecliptic Prospect. A) Orthocumulate olivine gabbronorite with blebby Fe-Ni-Cu sulphides at 252m (core size HQ). B) Feldspathic Orthocumulate websterite with net-textured Fe-Ni-Cu sulphides at 276m (core size HQ).**

### **Copernicus Prospect**

The Copernicus Prospect (Figure 2), 8 km south of the Silver Knight deposit, is a zoned 'chonolith' (worm-like) MUM intrusion, containing disseminated magmatic sulphides. These magmatic sulphides, where drill holes have encountered the intrusion, are low in nickel, but textures and relationships suggest they are very locally sourced and may become nickel-rich elsewhere in the system. During 4Q21, AC drilling defined up dip extensions of the Copernicus Intrusion. Assays are pending for this drilling, but results will help guide further assessment at the Copernicus Prospect.



## Celestial Prospect

The Celestial Prospect (Figure 2), 4 km east of the Silver Knight deposit, is a MUM intrusion with highly anomalous Ni that has been defined with a northeast strike over 1.5 km. MLEM surveys at Celestial have defined large stratigraphic conductors that together with local conductive cover has likely diminished the depth of investigation of MLEM techniques. Three DD holes are being drilled in FY22, following up the highly anomalous Ni anomalism and favourable geology and structures (Figure 18).

**Figure 18 - Celestial Prospect showing completed drilling, new drilling, and geology interpretation. Licence E28/2201 is a joint venture between IGO and Buxton Resources.**

## Lignum Prospect

The Lignum Prospect (Figure 2), is defined by a 6,500 Siemens, easterly dipping, north-northeast trending modelled MLEM plate surveyed in 2020. The target is located approximately 4 km west of the translithospheric Boonderoo Shear Zone. AC drilling conducted in the broader area has encountered MUM intrusions with disseminated magmatic Ni-Cu sulphides (e.g. Oaktree Prospect). Drilling of the Lignum Prospect is scheduled for FY22.

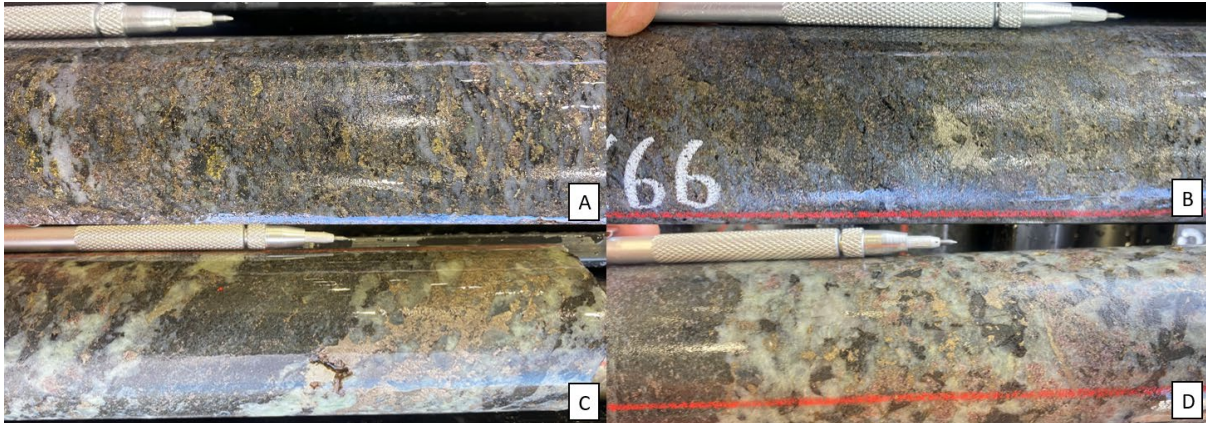
## Oaktree Prospect

The Oaktree Prospect (Figure 2) has historically been tested by MLEM and diamond drilling. Electromagnetic conductors are present at the prospect and previously found to be graphitic metasediments, however, the previous RC drilling did intersect MUM intrusions with disseminated Ni-Cu Sulphides, and graphitic sediments have been known to obscure massive sulphide mineralisation in the Fraser Range. Diamond drilling of the Oaktree Prospect is scheduled for FY22, with the drill hole targeting an inferred downdip extension of the Oaktree intrusion. Geochemical sampling and detailed structural analysis will be undertaken on the proposed Oaktree DD hole.

## Moa Prospect

The Moa Prospect (Figure 2) was identified by a MLEM survey completed in FY21 following up anomalous elements associated with VMS mineralisation and mafic lithologies identified by auger drilling. A discrete conductor (13,000 Siemens) was modelled at the Moa Prospect and drill tested in 4Q21 with a DD hole. A thick package of metasedimentary rocks with minor mafic granulite was intersected. Multiple thick zones of disseminated and stringer pyrrhotite occur within sheared quartz garnet intervals and includes variable disseminated graphite (Figure 19A-D). Trace chalcopyrite and sphalerite occur sporadically within these sequences (e.g. Figure 19A). These intersected metasediments were shown by DHEM to be the source of the MLEM conductor. Assays are pending, but based on visual assessment and DHEM results, the target appears to be fully tested.

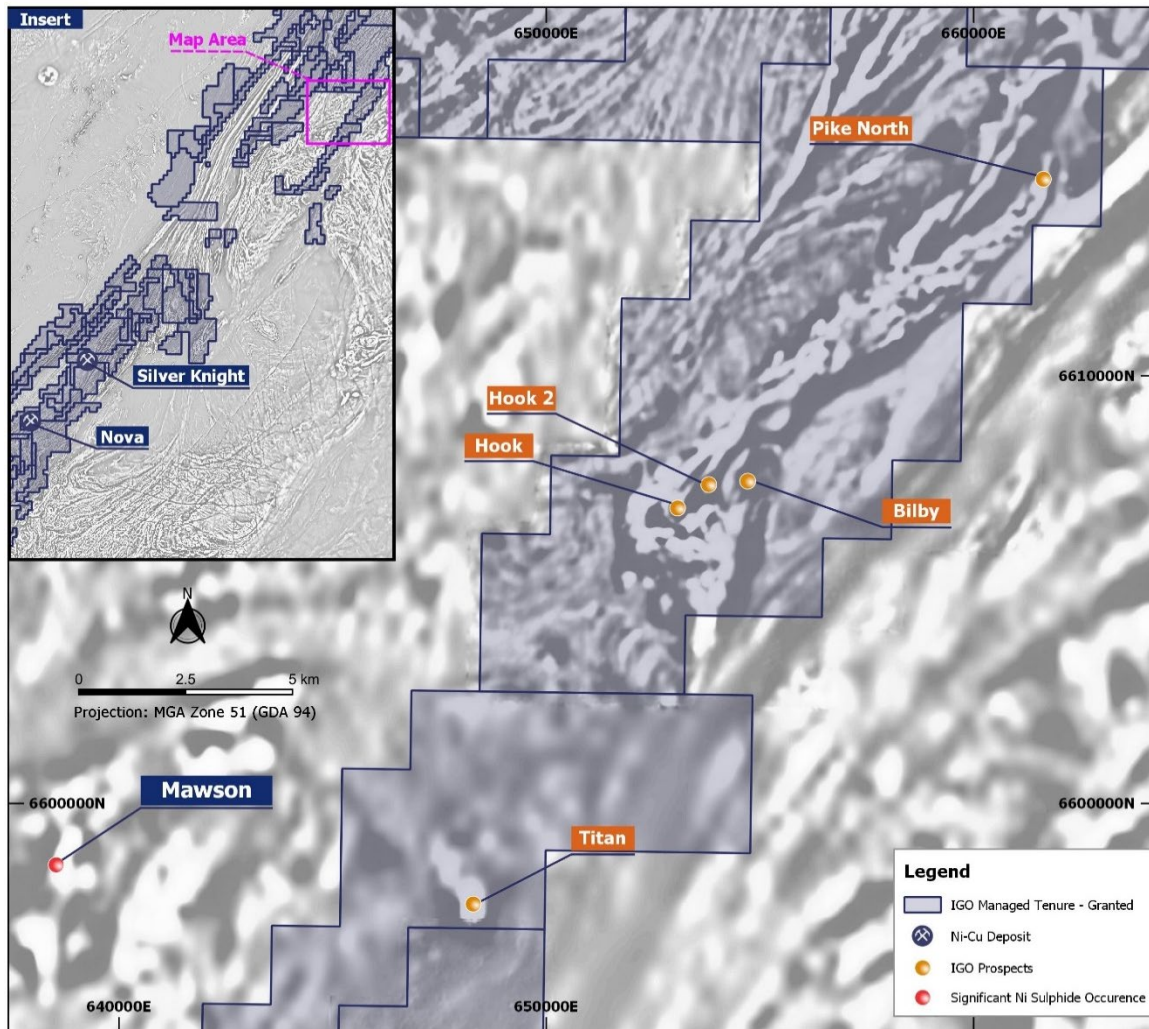




**Figure 19 - Metasedimentary sulphide textures at the Moa Prospect. A) Pyrrhotite, pyrite and trace chalcopyrite within graphitic siliceous metasediments at 140m. B) Disseminated to blebby pyrrhotite within siliceous metasediments at 166m. C) Coarse stringer pyrrhotite within banded metasediments at 220m. D) Blebby pyrrhotite within coarse quartz-garnet-biotite at 221m.**

### **Kanandah Area**

The Kanandah area (Figure 20) abuts the translithospheric Boonderoo Shear Zone on the eastern margin of the Fraser Zone. It extends for approximately 30 km along the same gravity ridge that hosts Legend Mining's Mawson Ni-Cu prospect. Aeromagnetic data reveals a structurally complex area comprising tight folding, 'eye features', and major faults. Wide-spaced AC drilling at Kanandah has identified moderate to very thick transported cover, ranging from 49m to 201m, and averaging 103m. Nevertheless, prospective intrusions have been intercepted and this resulted in the completion of multiple MLEM surveys and an interpretation of all available geophysical datasets. Key prospects to arise from this work include Hook, Hook 2, Pike North, Bilby, and Titan.



**Figure 20 - Kanandah area showing IGO tenements and drill-ready targets relative to the Mawson nickel-copper prospect. Background image is greyscale TMI aeromagnetics.**

### Hook and Hook 2 Prospects

The Hook and Hook 2 prospects (Figure 20) occur at the southern end of a complex fold hinge inferred from regional aeromagnetic surveys. Two DD holes were drilled at Hook and Hook 2 in 2019 to test two high-conductance MLEM anomalies (4,400 S and 7,000 S, respectively) that coincided with anomalous copper and zinc concentrations identified by earlier AC drilling.

Intervals of up to 20m of graphite and sulphide-rich metasediments were intersected at Hook and that explained the original MLEM anomaly. A strong (18,000 S) off-hole conductor was identified by DHEM, 100m beyond the end-of-hole, and this target remains untested. Mafic intrusions within reduced sulphidic metasediments are also present towards the end of the hole, and hence the strong off-hole conductor at Hook represents a high-quality target.

At Hook 2, adverse drilling conditions meant the drill hole had to be abandoned earlier than planned, and as a result the original MLEM conductor remains untested. Drilling in FY22 will test this target.

### Bilby Prospect

The Bilby prospect occurs approximately 1km east of the Hook 2 prospect and within the same complex fold feature inferred from regional aeromagnetic surveys (Figure 20). A high-conductance (7,000 S)

bedrock conductor was identified by a MLEM survey. Potential field inversions and nearby intersections of MUM intrusions at Hook and Hook 2, suggests it is entirely permissible that the Bilby EM target represents magmatic Ni-Cu massive sulphides at depth. Drilling in FY22 will test this target.

### **Pike North Prospect**

The Pike North prospect is a discrete, high conductance (5,000 S) bedrock conductor identified by a MLEM survey, in an interpreted complex fold structure. Potential field inversions and nearby intersections of MUM intrusions in earlier AC drilling, suggests it is permissible that the Pike North EM target represents magmatic Ni-Cu massive sulphides at depth. Drilling in FY22 will test this target.

### **Titan Prospect**

The Titan Prospect (Figure 20) is a discrete, coincident magnetic and gravity target, interpreted to be on the same MUM intrusion-hosting fold structure as the Mawson Ni-Cu prospect, which is 9 km to the west. Titan is represented by a 2.0 km × 0.8 km coincident magnetic and gravity anomaly. The core of the gravity anomaly lies between 350m and 500m depth and has a similar signature to the Mawson gravity anomaly. AC drilling around the Titan anomaly has identified a thick blanket of transported cover that has prevented effective testing by MLEM. However, the presence of MUM intrusions in some of the AC drill holes near Titan, and along strike at the Hook prospect, has upgraded the Ni-Cu sulphide potential of the area. An EIS co-funded DD hole is scheduled to test this anomaly in FY22.

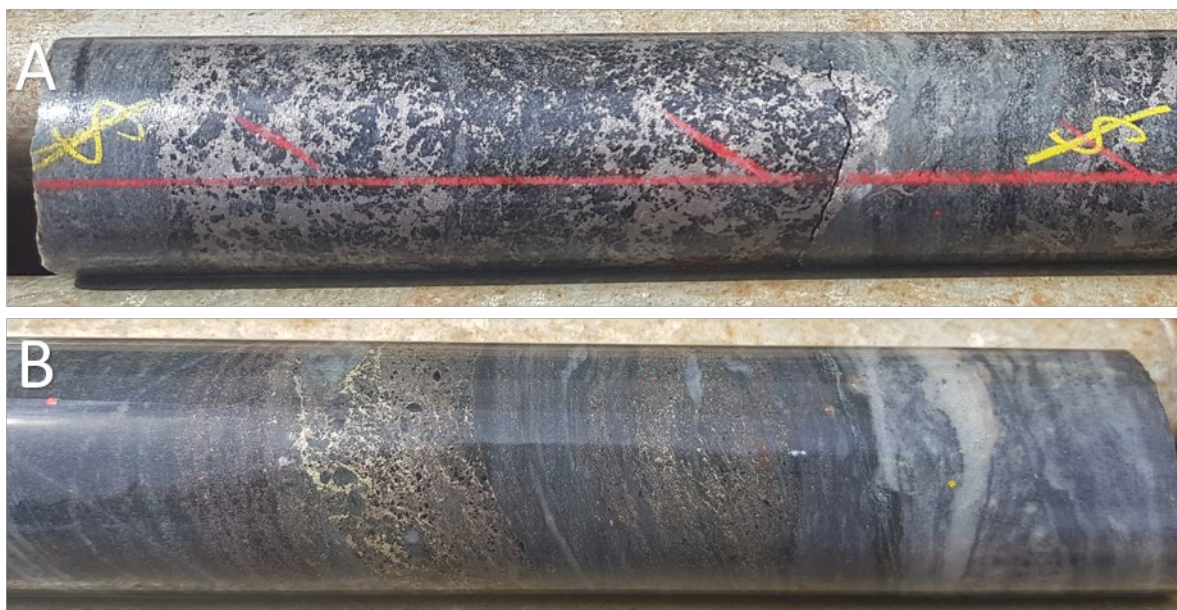
### **Waddy Area**

The Waddy Area is a complexly deformed region in the northern Fraser Range that is dominated by a large elliptical 'eye' feature that comprises multiple MUM intrusions hosted by reactive metasediments like those observed at Nova. IGO considers the area to be highly prospective for Ni-Cu sulphide mineralisation having identified several prospects within and around this feature.

### **Skipjack Prospect**

The Skipjack Prospect (Figure 2) was identified by a MLEM survey completed in FY20 following mafic lithologies intersected by AC drilling in FY18. A single conductor (4,400 S) was modelled and thought to potentially represent massive Ni-Cu mineralisation. A DD hole tested this target in October 2020 and results are encouraging, with coincident minor Cu-Zn mineralisation encountered and a modelled 11,000 S off-hole conductor. Mineralisation encountered at the Skipjack Prospect (Figure 21) appears to be Andromeda-style VMS Cu-Zn mineralisation. Follow-up DD testing is planned in FY22.





**Figure 21 – Andromeda-style, VMS sulphide textures at the Skipjack Prospect. A) Iron-sulphides (pyrrhotite) with minor copper-sulphides (chalcopyrite) and zinc-sulphides at 461m (NQ core size). B) Brecciated iron-sulphide (pyrrhotite) with copper-bearing sulphide (chalcopyrite) and zinc-bearing sulphide at 432m (NQ core size).**

### Heatwave Area

The Heatwave Shear Zone (HSZ) is in the northern half of the Fraser Range and runs sub-parallel to the major northeast-trending Fraser Shear Zone to the west and the Boonderoo Shear Zone to the east. The HSZ can be traced through the entire northern half of IGO's tenure and appears to be a favourable structure controlling the emplacement of MUM intrusions. Recent and historic drilling along the HSZ has identified several intrusions, including some highly prospective MUM intrusions that host finely disseminated Ni and Cu sulphides. The Mahi Mahi, Area N, and Big Bullocks 1 prospects are the most advanced prospects along this trend.

### Mahi Mahi / Area N Prospects

Mahi Mahi and Area N prospects (Figure 2) have been systematically tested by MLEM and DD holes. EM conductors at both prospects were found to be graphitic metasediments, but the drill holes also intersected MUM intrusions with anomalous nickel concentrations and so both are targets that require follow up work.

### Big Bullocks 1 Prospect

The Big Bullocks 1 Prospect (Figure 2) is a MUM intrusive complex mapped by AC drilling with dimensions of 1.8 km x 0.9 km. AC drilling has highlighted discrete zones with anomalous Ni and Cu in MUM rocks that are very akin to Nova. Conductive cover is locally present and has hampered the depth of investigation of MLEM techniques. Targets based on AC geochemistry and combined magnetic / gravity data interpretations are being finalised, with the aim being to DD test Big Bullocks 1 in FY22.

### Central Western Area

The Central Western area is north of the Trans-Australian Rail Line within IGO's north-western-most tenements. These tenements are bound by the Harris Lake Shear Zone (HLSZ) to the west and the



Fraser Shear Zone (FSZ) to the east. Deep 2D Government seismic data indicates that both structures are linked at approximately 20 km depth and are major translithospheric structures that could have provided passageways for MUM intrusions.

IGO has redefined the location of the HLSZ based on a reinterpretation of its regional AC drilling, AEM, detailed aeromagnetic data and 2D seismic data, shifting it further west, which has increased the area considered prospective. A second-pass AC drilling campaign based on this interpretation has now been completed with several prospective MUM intrusions identified along the target corridor that extends north-to-south for at least 50 km. Future work in this area includes targeted MLEM and further infill AC drilling to follow up the clustering of MUM intrusions.

### **Gazelle and Camaro Areas**

The Gazelle Area (Figure 2) refers to a series of gold prospects that are defined by highly anomalous gold intersections that occur approximately 100km northeast of the Nova Operation<sup>xx</sup>. Widespread gold anomalism has been sampled at the surface or intersected in AC holes along a 20 km long corridor that extends from Torquata in the south to Boson in the north. The Torquata surface gold anomaly covers a 3 km x 1.8 km area and includes several >100 ppb gold in calcrete anomalies<sup>yy</sup>. Gold mineralisation identified by AC drilling is primarily hosted in transported sediments deposited in a paleo-drainage system. However, a Scanning Electron Microscopy study completed as part of a research project at Curtin University has identified gold particles that are suggestive of proximal basement gold.

In FY22, a detailed structural analysis will be undertaken in-house on the Gazelle area, in conjunction with hyperspectral mapping of historic AC holes. This is being done to assess the area's potential to host a world-class orogenic gold system, like Tropicana.

The Camaro Prospect area (Figure 2) like Gazelle, refers to an area of highly anomalous gold intersections<sup>zz</sup> that occur approximately 240 km northeast of the Nova Operation. Previous drilling identified a narrow vein gold system at Camero. A desktop review is being conducted on the nature of gold at Camaro, and whether upside remains.

xx – ASX Announcement, 01 July 2019, Rumble Resources – “JV Partner Intersects Significant High-Grade Gold Mineralisation in Fraser Range” and 06 October 2020, Rumble Resources - “16 m @ 6.69 g/t Gold Intersected at Fraser Range”

yy – Refer to data published by Sipa Resources in 2005 Annual Report E28/1238

zz – ASX Announcement, 28 January 2011, International Goldfields – “December Quarterly Report”