Tasmania Rare Earths Pty Ltd

Exploration Licence 12/2022
Nile Road

Final Report
December 2024

A. Lintner
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Tasmanian Rare Earths Pty Ltd
Level 2, 16 Altona St
West Perth WA 6005
PO BOX 1175
West Perth WA 6872

GDA94 Zone 55

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1 Summary

Tasmanian Rare Earths Pty Ltd sought Exploration Licence 12/2022 to explore for rare earth elements in prospective bauxitic areas previously identified by MRT and ABx Pty Ltd. Rare earth elements are on the government's critical minerals list, with Australia having 4% of the world's demonstrated resource in 2022. Geoscience Australia stated in 2023 that there is a high level of geological potential for REE in Australia. REE are vital to the transition towards renewables and establishing a reliable, consistent local supply is invaluable. The American Geosciences Institute website published part of a since deleted US Geological Survey news release "Going Critical" which explained that by 2011, China accounted for 97% of the world's REE production and that, since the 1990s the Chinese Government started restricting the amount of REE that it allowed to be produced & exported as well as the number of companies which could do so.

2 Introduction

Nile Road, EL12/2022, in the northern Midlands of Tasmania, was granted to Tasmanian Rare Earths Pty Ltd, a wholly owned subsidiary of Venture Minerals Ltd, by Mineral Resources Tasmania (MRT) on 16th December 2022. Basement geology through the midlands is predominantly covered by quaternary sediments with minor outcrop of Jurassic Dolerite and locally Tertiary Basalt. The area now covered by EL12/2022 was previously lightly explored mainly for oil and gas. The first anniversary year work on EL12/2022 included historical data search, data compilation and review, targeting, prospecting, soil and rock sampling. Tasmanian Rare Earths intends to relinquish the EL due to preponderance of homesteads and agricultural infrastructure in key target areas.

3 Location and Access

Exploration Licence 12/2022 is an extensive lease located in the northern midlands of Tasmania and currently covers 138 km^2. It is located approximately 13 km by road southeast of the Launceston CBD, in farmland dotted with small townships from White Hills in the north to Nile near the southern extent of the lease. EL12/2022 is stepped in shape, trending NW-SE following the direction of the South Esk River, a major catchment area of the water supply

for Launceston. EL12/2022 runs along the eastern boundary of two of the leases held by ABx in much the same terrain with similar target commodities.

The land within the current tenement bounds is privately owned with predominantly agricultural usage. Sheep grazing occurs across most of the ground with some vineyards and wheat crops centred on iron rich laterite occurrences. There are numerous relict eucalypts standing singly in cleared paddocks with small areas of less disturbed bushland. Dry eucalypt forest is the most common native vegetation in EL12/2022. There are lesser pockets of native grassland and minor scrubby heathland.

The topography of EL12/2022, despite its extent, is not widely varied with small, forested hills dotted around primarily flat arable land. The elevation minimum is ~100 masl to a high of over 430 masl in the hill to the southeast of the lease.

Access is plentiful across the lease with many public roads, mostly gravel, throughout, diverting from the main, sealed, eponymous Nile Rd. The average rainfall in this area is ~600 mm per annum. This cool, temperate zone has diurnal maximums between 11 and 24 degREE across the year with frosts in winter from 4 days in the low-lying riverine areas to 60 or more in the hills.

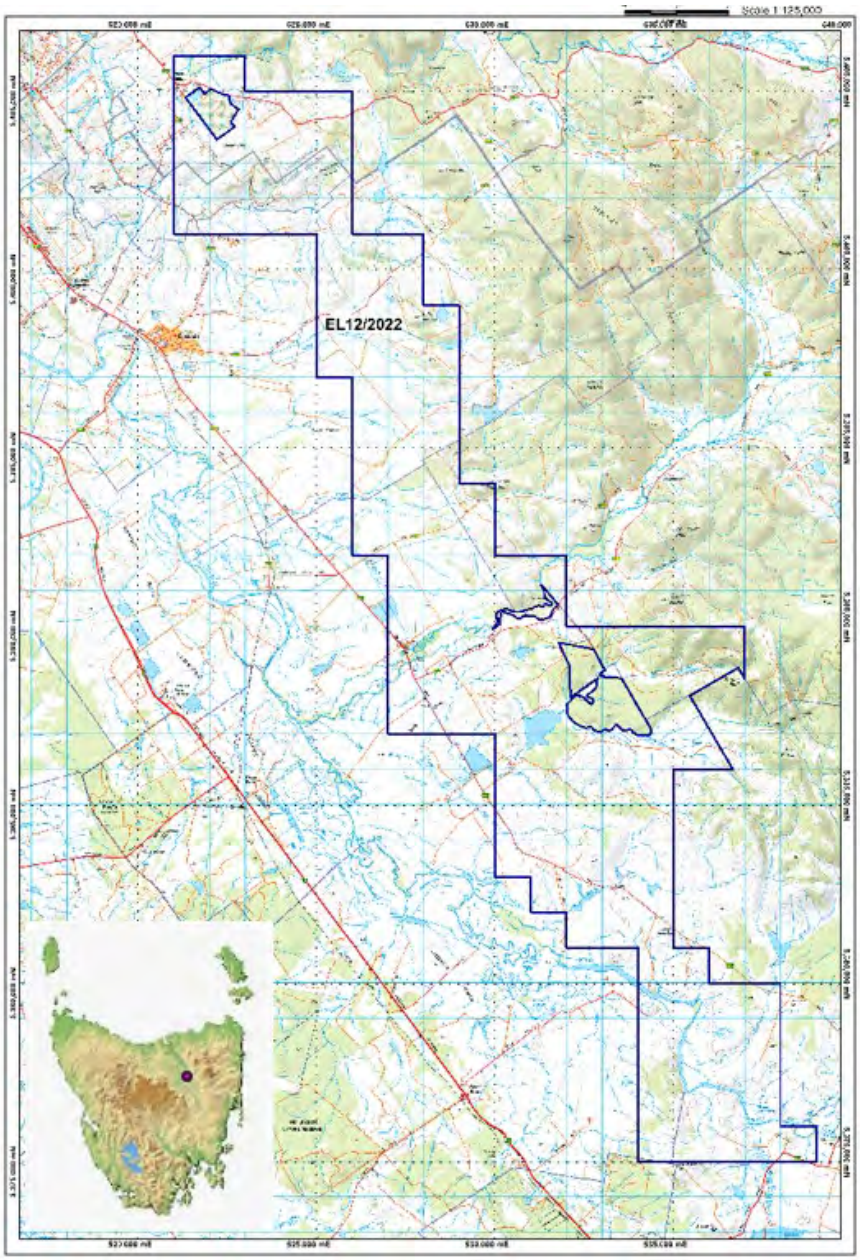

Figure 1: EL12/2022 Nile Rd Location Plan.

4 Exploration and Mining History

Past exploration in the area now covered by exploration licence 12/2022 has been focussed on energy, predominantly coal, but also oil, gas, & geothermal energy. Table 1 summarises the exploration activities according to previous tenement identities. Initially, oil seeps were identified (TwelvetREE, 1917), dismissed as most likely being film of iron hydroxide rather than petroleum but TwelvetREE also noted that the Tertiary sediments of the Launceston basin, with its interbedded sand, clay and lignite were the most favourable beds for potential oil discovery in Tasmania. Later in the twentieth century coal was the focus of exploration within the Ordovician and Permian sediments, of the southern and northern midlands respectively. More recent exploration efforts have focussed on geothermal energy and bauxite.

ABx4 conducted a reverse circulation (RC) drilling program in the Evandale area, beginning in 2010, to explore for bauxite (Coyte and Rebek, 2011). The initial locus was the historic bauxite occurrence recorded in White Hills, then expanded to other lateritic zones in the vicinity, identified through study of the geomorphology around Evandale to find partially weathered plateaus. Eight RC holes were drilled on Blessington Road, east of Evandale, and 11 holes drilled east of these in White Hills. ABx4 found the silica content in the RC samples to be too high, despite encouraging bauxite grades, and given the limited potential size of the targets, relinquished the lease in 2017 (Coyte, 2017).

Tenement ID	Company	Year from	Year to	Licence Type
EL5/1962	Tasmanian & Bass Strait Oil NL	1962	1962	Metallic minerals, atomic substances
EL15/1967	Sulzberger CG	1967	1971	NA
EL16/1972	Tenneco Australia Incorporated	1972	1973	Metallic minerals, atomic substances
EL6/1981	Victor Petroleum & Resources Ltd	1981	1981	NA
EL1/1988	Great South Land Minerals Ltd	1989	1993	Petroleum Products
SEL13/1998	Great South Land Ltd	1999	2004	Petroleum Products
SEL32/2003	OME Resources Australia Pty Ltd	2004	2005	Petroleum Products
SEL26/2005	KuTh Exploration Pty Ltd	2006	2014	Geothermal Substances
SEL5/2005	Overseas Energy Holdings Ltd	2005	2015	Petroleum Products
EL6/2010	ABx4 Pty Ltd	2010	2016	Metallic minerals, atomic substances
EL4/20210	ABx4 Pty Ltd	2010	2017	Metallic minerals, atomic substances
SEL5/2009	Empire Energy Corporation International	NA	NA	Petroleum Products

Table 1 – Summary of previous tenement holders and IDs of leases held over all or part of EL12/2022

5 Geological Setting

EL12/2022 lies across the Eastern Tasmanian Terrane with the basement geology comprising undeformed marine glacial sediments of the Late Carboniferous - Triassic Parmeener Supergroup, mostly covered by freshwater Quaternary and Tertiary Sediments and Tertiary Basalt with intrusions of Jurassic Dolerite. The Eastern Tasmanian Terrane is the southernmost extension of the Lachlan Fold Belt, characterised by corresponding paleocurrents identified on either side of the Bass Strait, in Lower Ordovician quartzose turbidites, and Early Devonian Mathinna Group sediments, and megakinks which have abrupt swings in strikes of cleavage (Baillie et al., 1992).

The Lower Parmeener Supergroup was divided by Clarke and Banks (1975) into the Lower Marine Sequence consisting of glaciomarine and fossiliferous marine sediments, Lower Freshwater Sequence made up of non-marine sandstone and coal. The Upper Parmeener Supergroup is divided according to age, rather than environment as the lower is, with the Upper Freshwater Marine sequence consisting of Permian fossiliferous marine siltstone and sandstone, the remainder and majority of the Upper Parmeener Supergroup being made up of Triassic non-marine rocks (Corbett et al., 2014).

The Parmeener Supergroup sediments were intruded in the Early Jurassic by dolerite, with exposures throughout Tasmania, around the time of the break-up of Gondwana. The Tasmanian dolerite is a small part of the Ferrar Magmatic Province, the majority of which occurs in a large swath across Antarctica. The Tamar Graben, featuring in the north of EL12/2022, was one of the extensional basins formed during the breakup of Gondwana. Locally the NW-trending Longford Basin contains Palaeocene-Eocene sediments with minor lignite, capped with basalt in the Evandale area (Corbett et al., 2014). Figure 2 shows interpreted basement geology of the area.

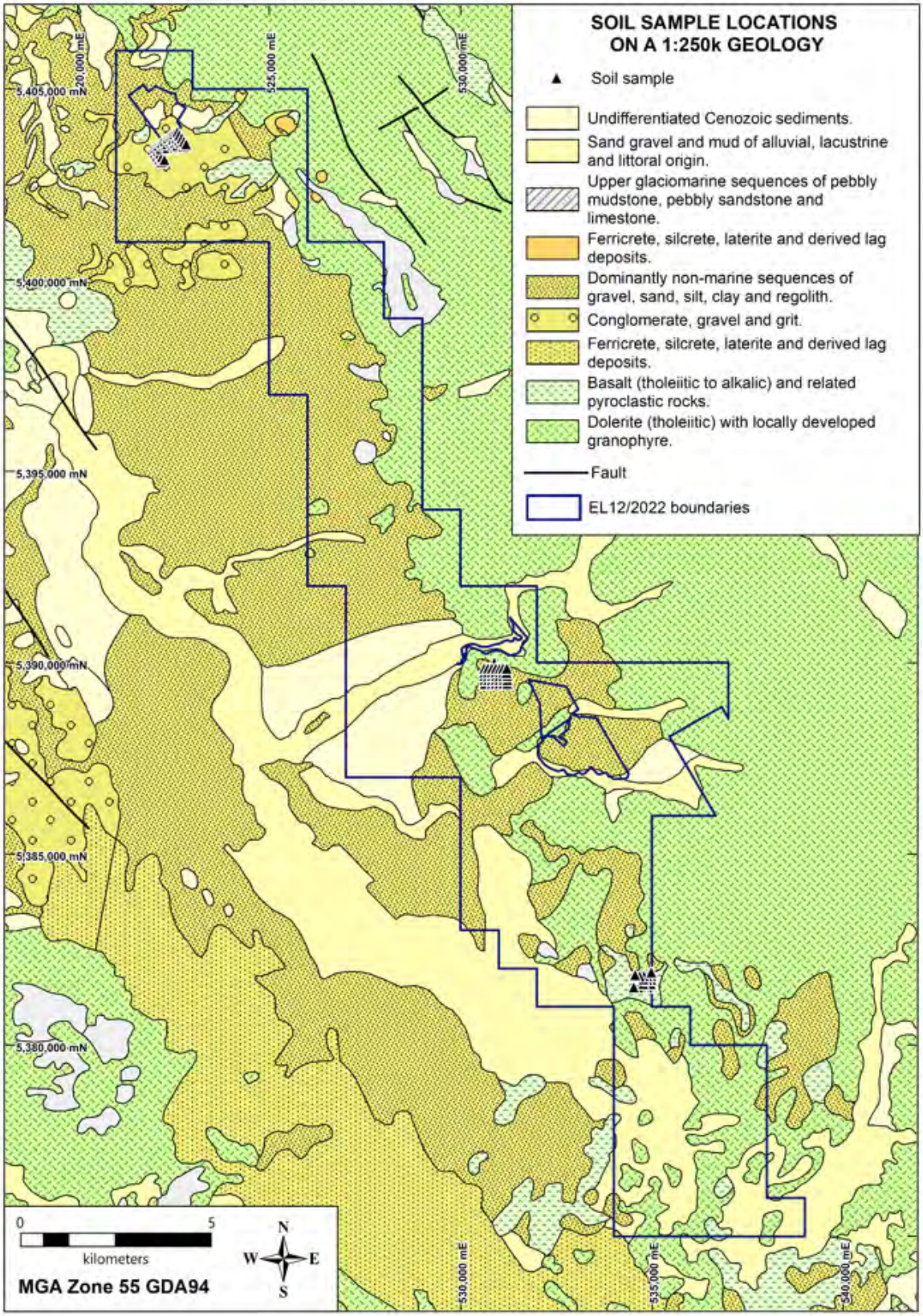

Figure 2: Tasmanian Rare Earths EL12/2022 completed soil samples on 1:250,000 geology.

6 Tasmanian Rare Earth Exploration Activities

6.1 Target development and reconnaissance

Historic exploration and mining reports assisted in establishing key target areas. A soil sampling program was developed targeting REE in areas of mapped bauxite and weathered Tertiary Basalt. The proposed soil program was modified after reconnaissance field work by a TRE geologist. Additional lateritic zones were found beyond those known from Tasmania geological survey maps. Five areas in the northern, central and southern areas of EL12/2022 were selected for soil sampling. Sampling was to be on 100x100m spacings covering areas of c. 0.5 km^2 each (Figures 2 & 3).

The sampling was substantially reduced once undertaken because of cultural and agricultural constraints (new vineyard plantings, dam walls and other earthwork contamination, and recently cultivated land) and an uncooperative farm manager.

6.2 Soil sampling

The northern area (grids A, B & C) with recorded bauxite occurrences overlying basement geology recorded as Tertiary Basalt was a priority target area. However, whilst some sampling was undertaken, the planned program was significantly reduced due to the presence of additional vineyards to those already precluded with exclusion zones & disturbance of the soils in the form of roads, gardens, driveways, dams etc. Perseverance with sampling even in areas with less disturbance was not deemed useful on the basis that such an amount of infrastructure would make higher impact exploration activities difficult and likely preclude development should a REE deposit be identified.

Most of grid area A (Figure 4) was sampled except the southern edge where the paddocks had been very recently ploughed and planted with a potato crop, adjacent to an active masked lapwing nest and a small dam. Areas B & C were scantly sampled upon encountering additional vineyards and private residences than had been noted during desktop planning. Area D was sampled almost entirely as planned, only one sample on the lip of a dam omitted. Area E was left incomplete after the farm manager ordered field assistants off site. Adequate written notice had been provided prior to sampling, however it was determined further sampling of this area not be pursued due to the overall unviability of the lease.

6.3 Assay results and data analysis

Area A has elevated Nd (>75 ppm) and Ce (>100ppm) flanking the bauxite hill near the centre of the sampling grid. The highest Nd value is immediately south of an exclusion zone (Figure 4). Areas B and C (Figure 4) returned weakly anomalous Nd and Ce but sampling was too sparse to delineate geochemical trends.

Area D has only weakly elevated Ce and Nd towards the hill to the west of the sampled area (Figure 5). Nothing on the ground (outcrop or change in vegetation) indicated that the small rise to the west of the planned sample sites would be more prospective. While the

planned soil sampling grid in Area E could not completed, elevated Nd (up to 108 ppm) was encountered flanking a mapped bauxite occurrence.

A roughly inverse spatial relationship between Nd, Ce, K and Al, Fe, P and Mn with the REE elements more elevated around the flanks of the bauxitic hills and the latter elevated over the centre of the bauxitic areas may be consistent with Nd & Ce enrichment in clays zones relative to the laterite cap. Such a relationship is a positive sign for clay-hosted REE mineralisation. Higher levels of Ce relative to Nd may reflect greater primary abundance (the lightest REE typically being most abundant) or preferential “fixing” of Ce with Mn oxides in the weathering profile, especially in the laterite cap zone.

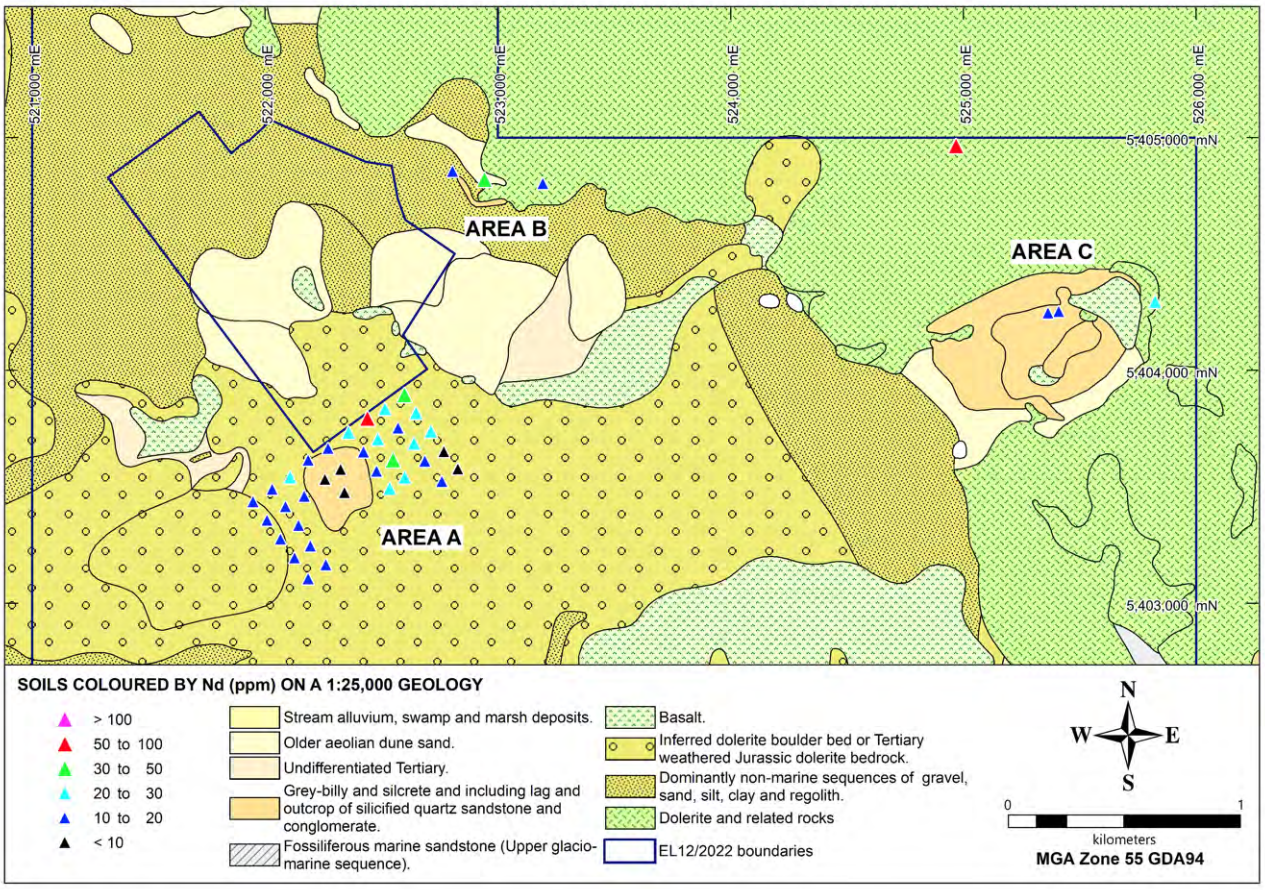

Figure 3: EL12/2022 North - Nd ppm by Li borate fusion ICP-MS on 1:25,000 geology

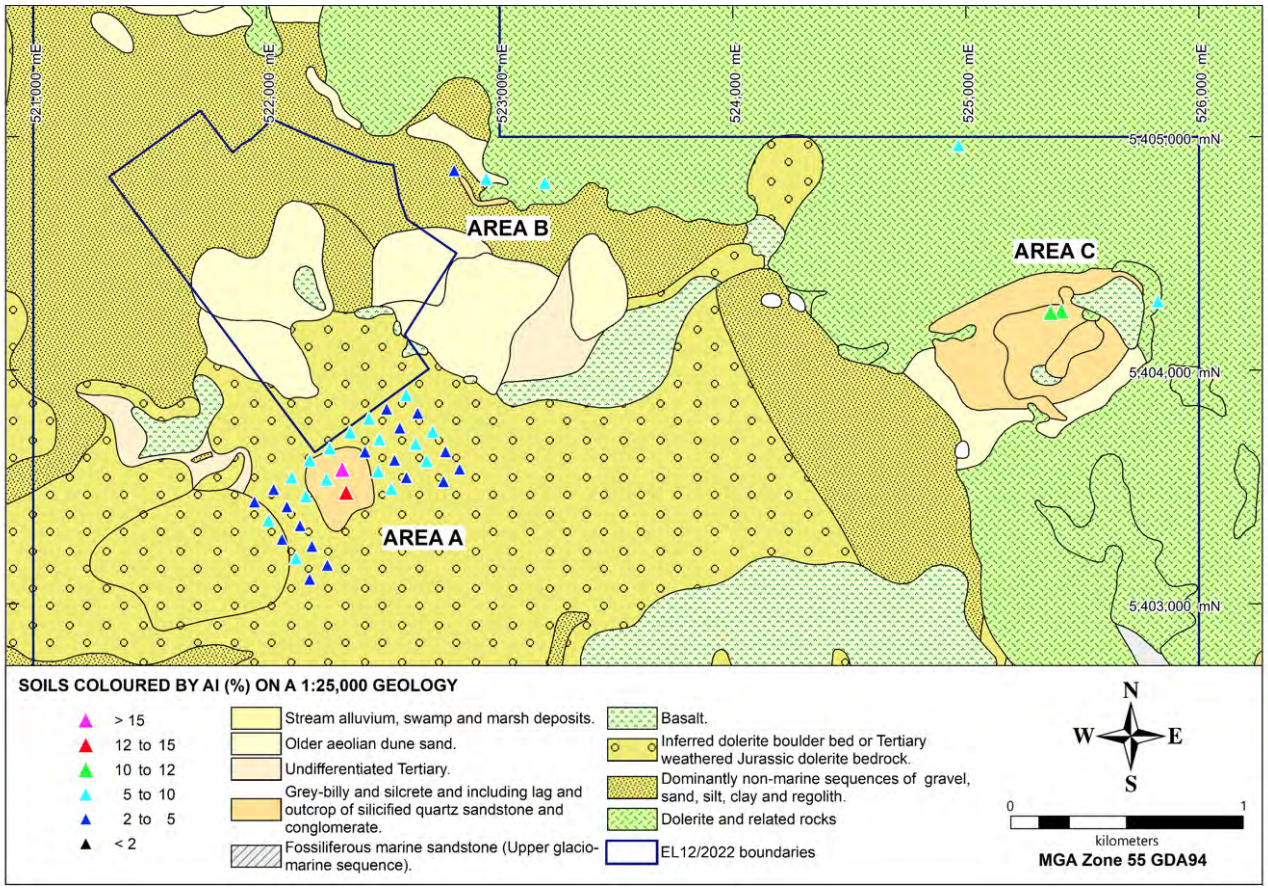

Figure 4: EL12/2022 North - Al (%) on 1:25,000 geology

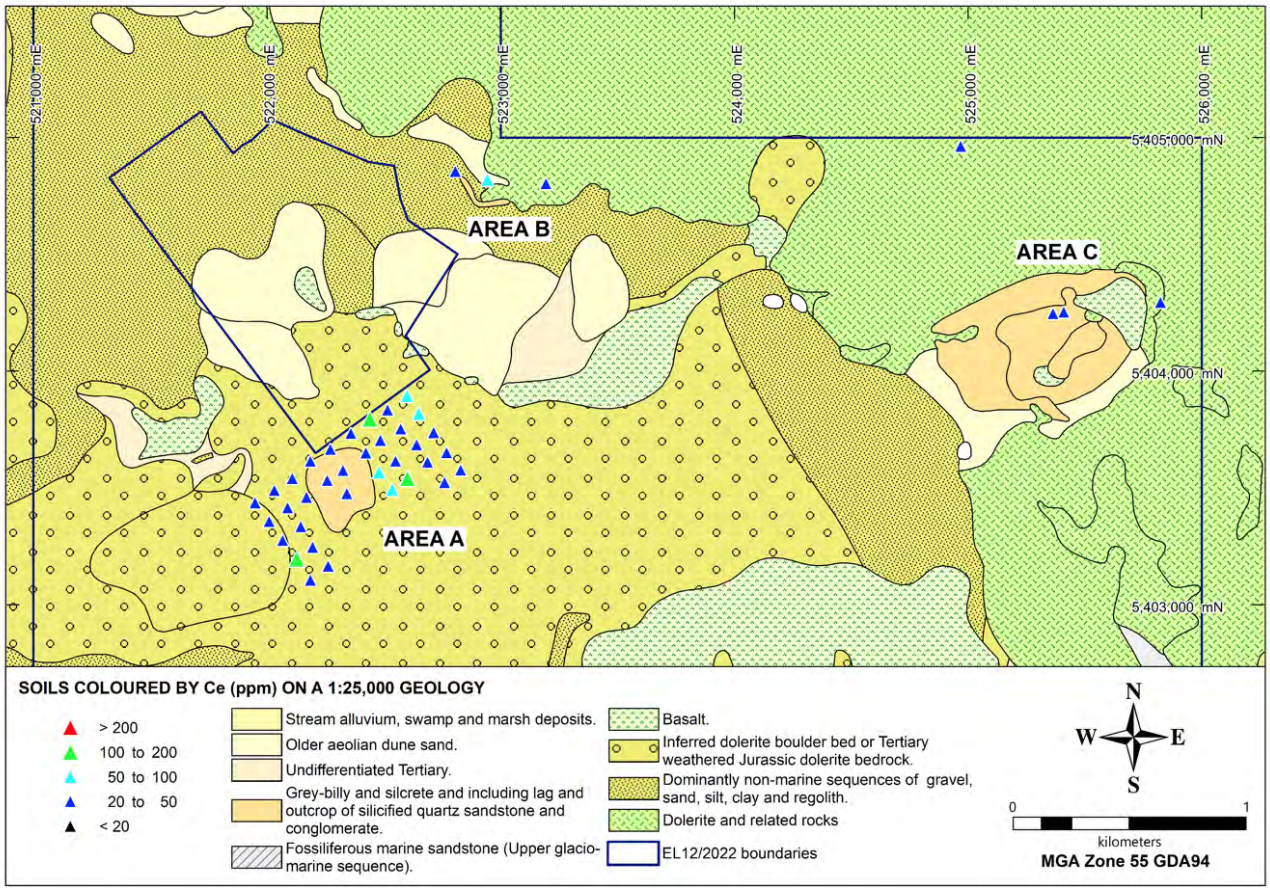

Figure 5: EL12/2022 North - Ce (ppm) on 1:25,000 geology

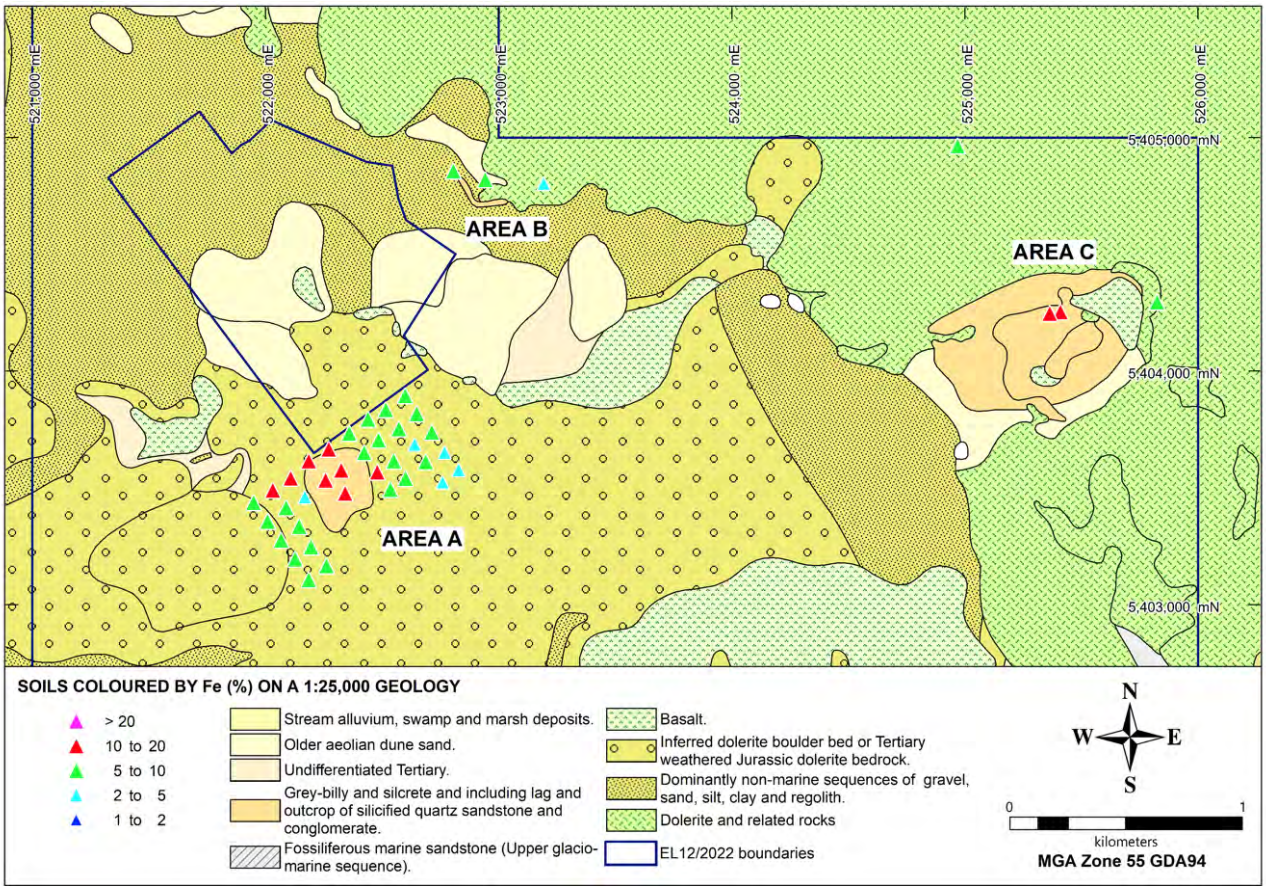

Figure 6: EL12/2022 North - Fe (%) on 1:25,000 geology

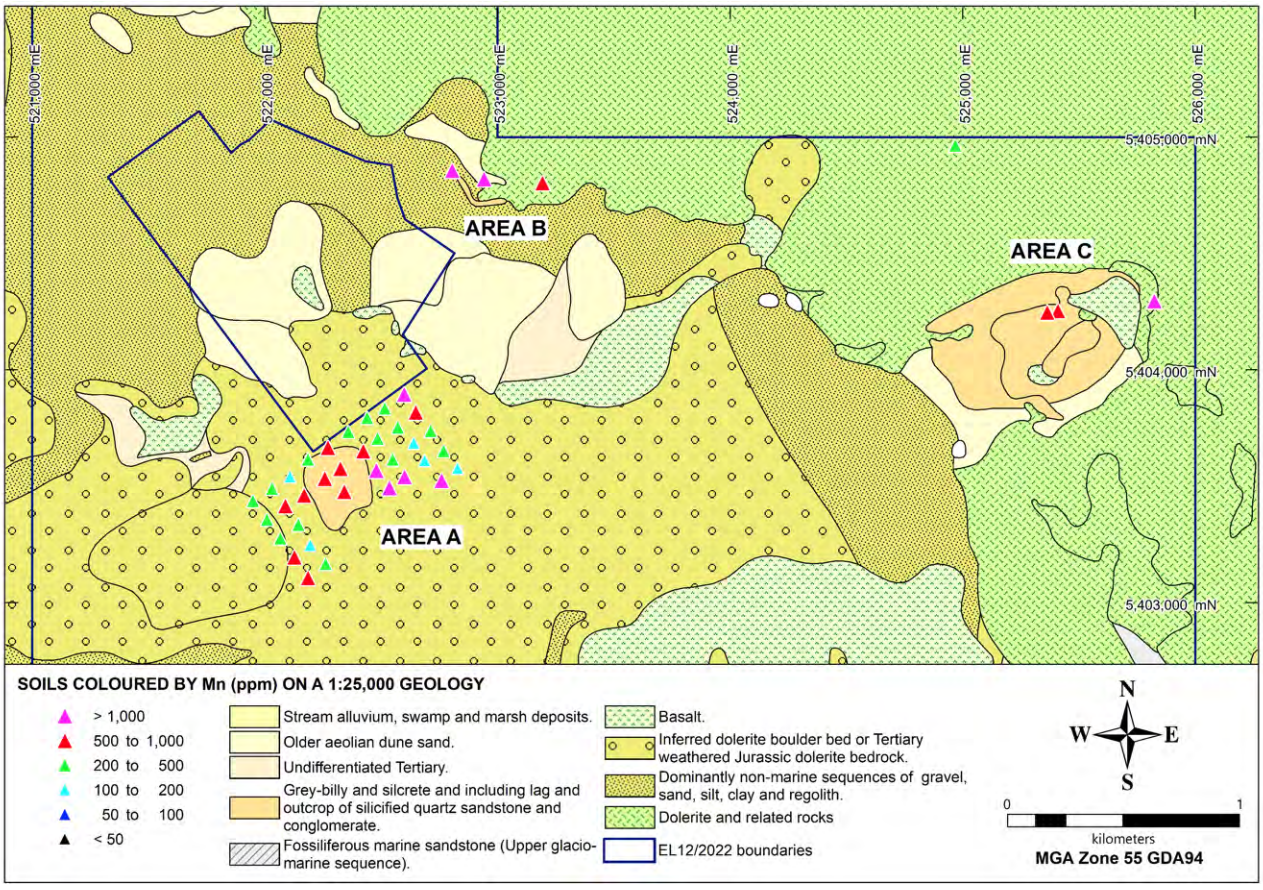

Figure 7: EL12/2022 North - Mn (ppm) on 1:25,000 geology

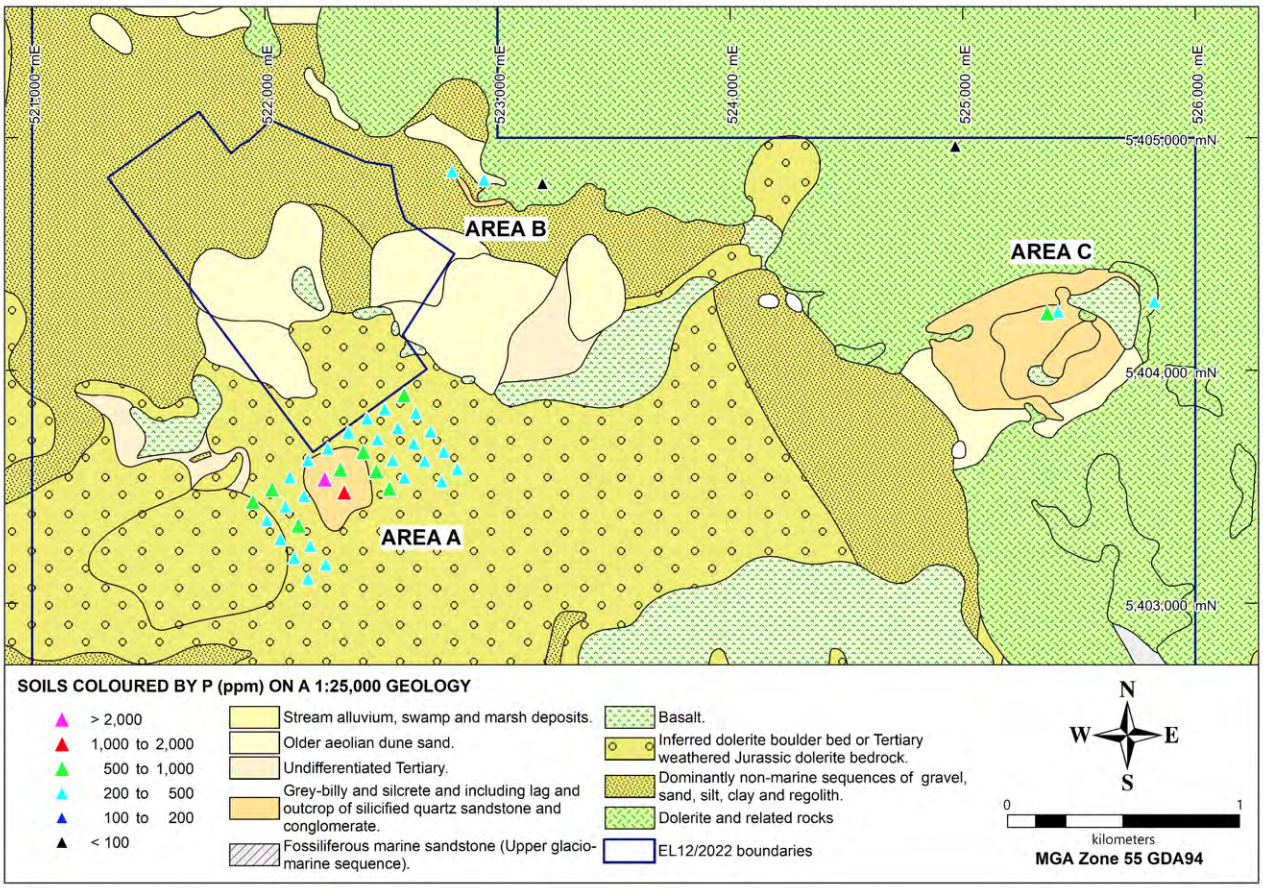

Figure 8: EL12/2022 North - soils coloured by P (ppm) on 1:25,000 geology

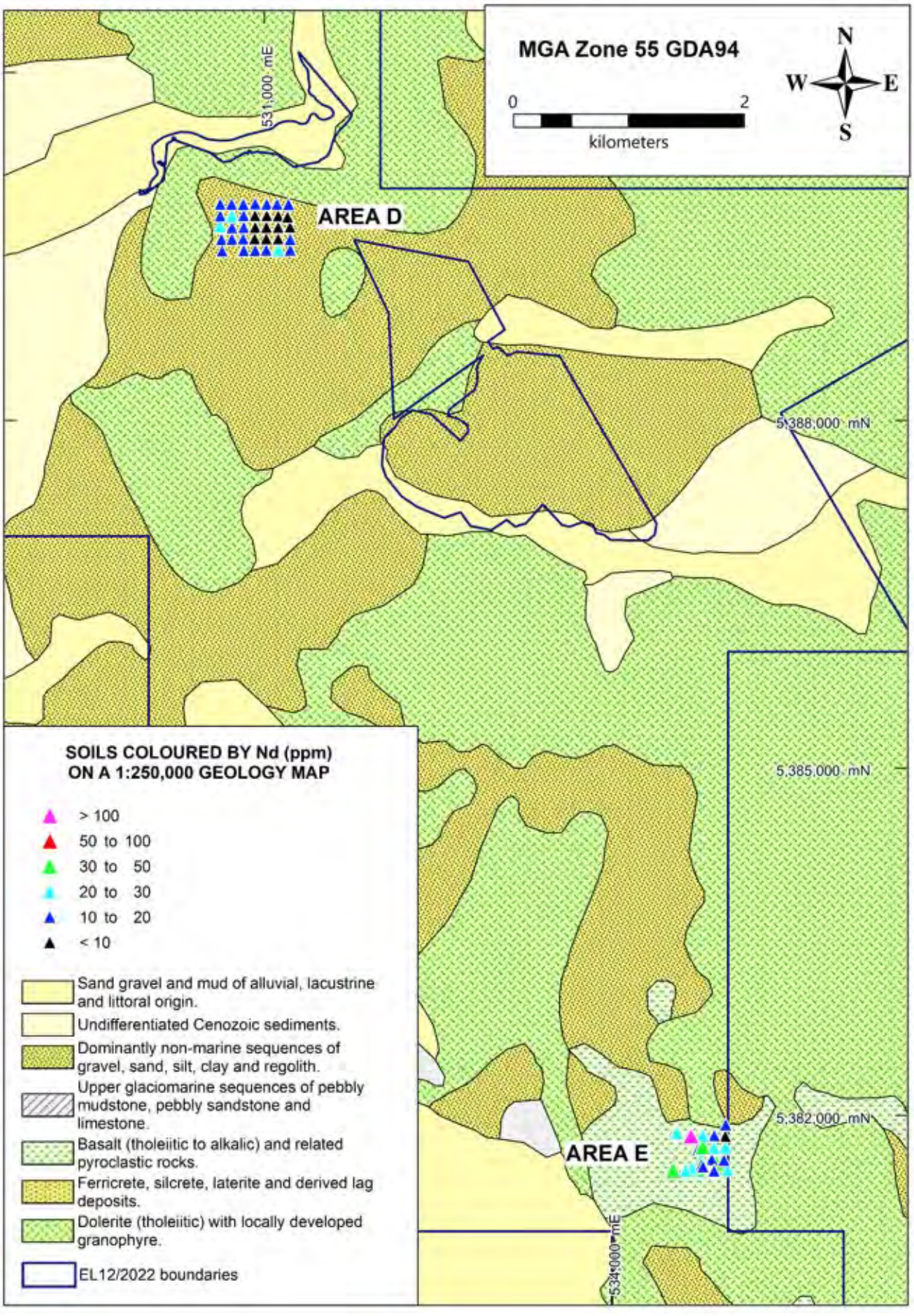

Figure 9: EL12/2022 South - Nd (ppm) by Li borate fusion ICP-MS on 1:250,000 geology

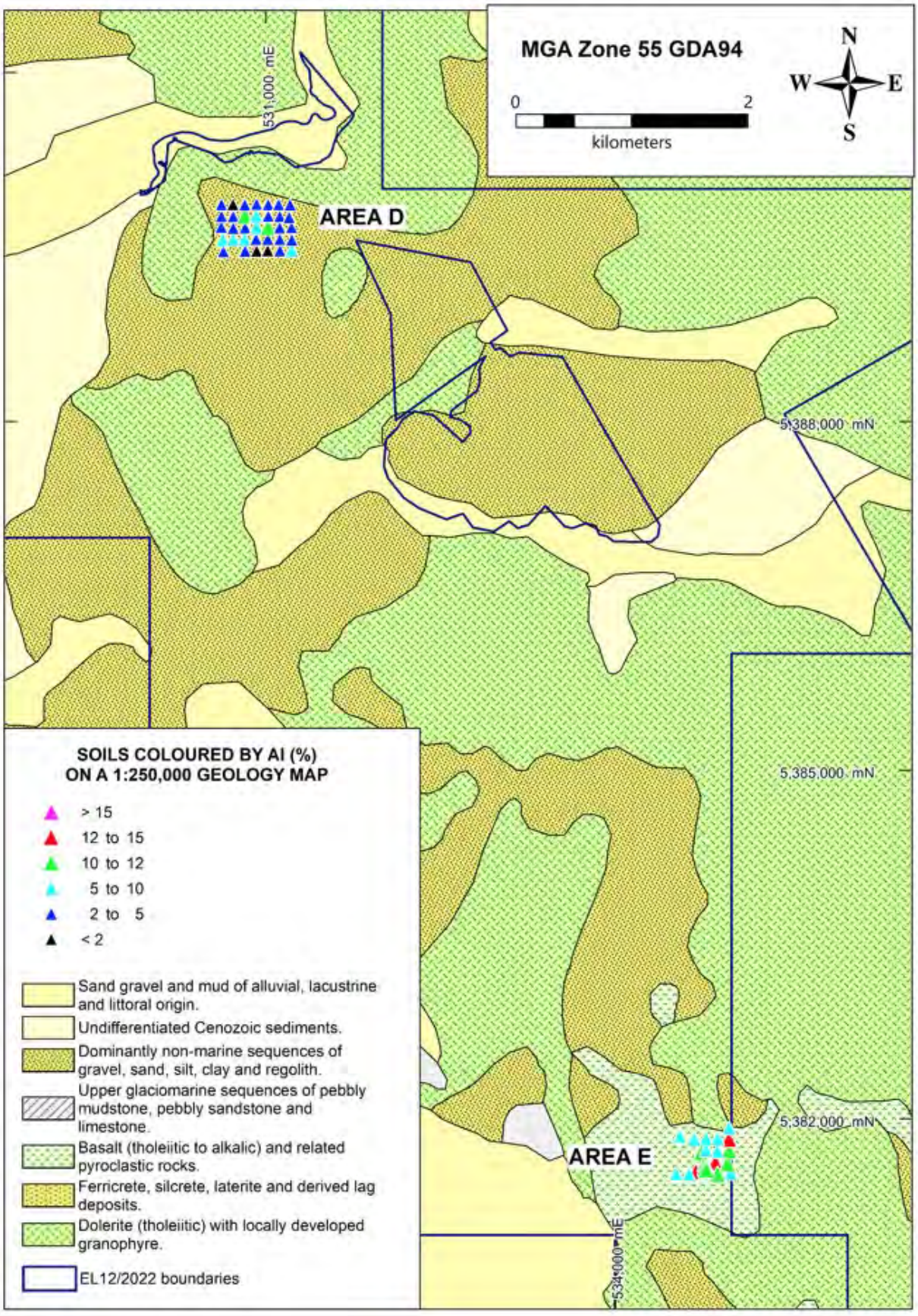

Figure 10: EL12/2022 South - Al (%) by Li borate fusion ICP-MS in areas D & E on 1:250,000 geology.

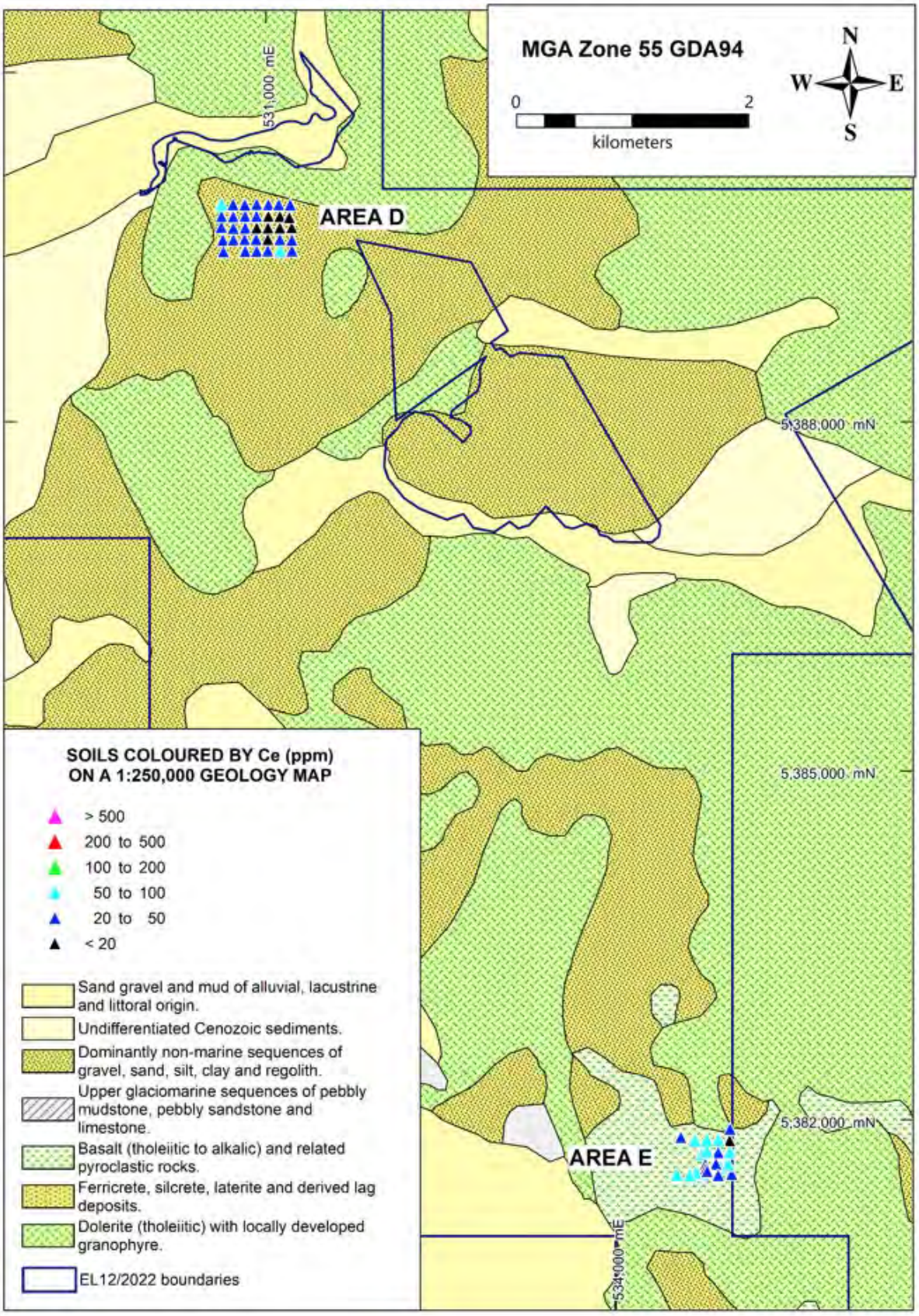

Figure 11: EL12/2022 South - Ce ppm by Li borate fusion ICP-MS in areas D & E on 1:250,000 geology

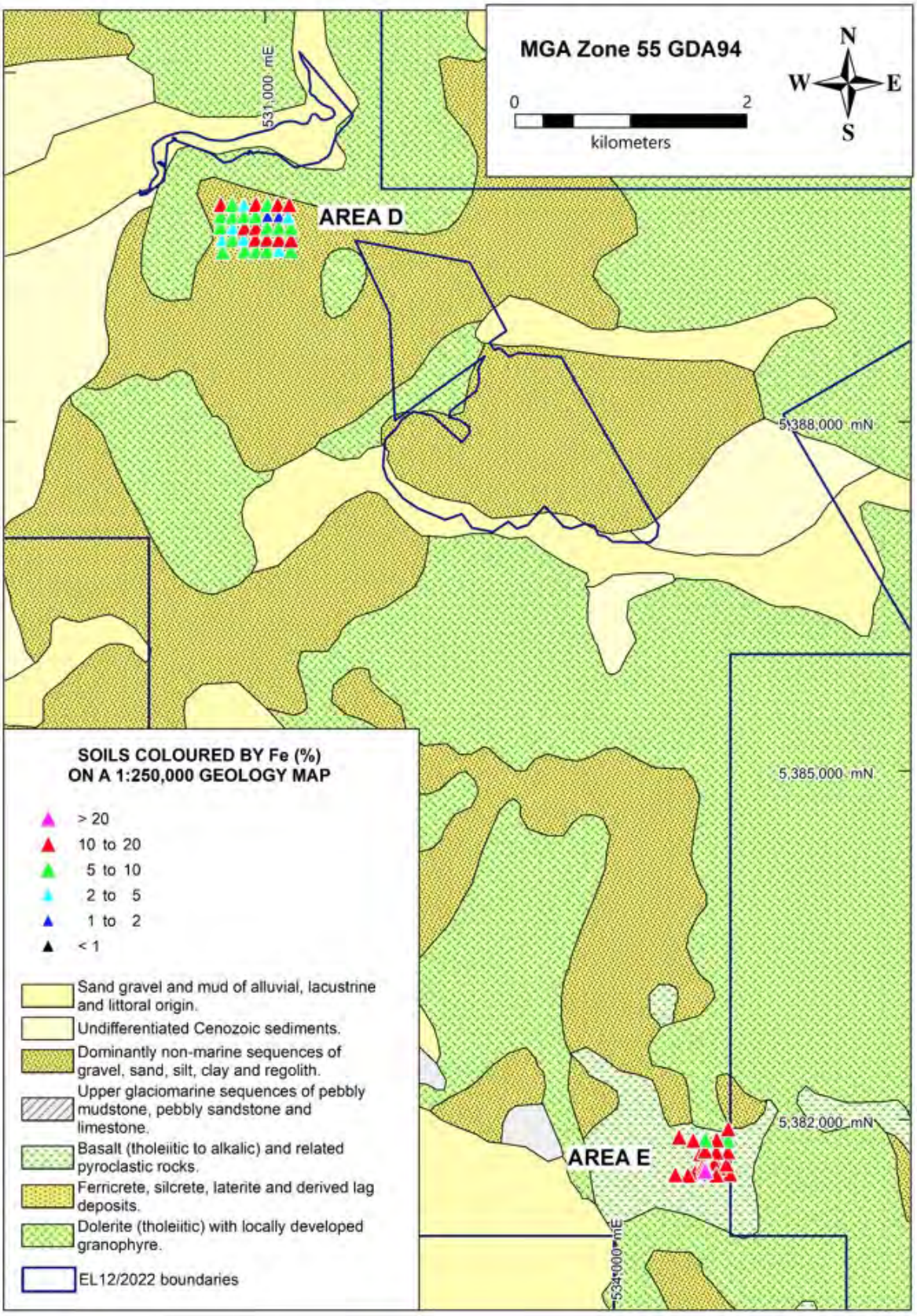

Figure 12: EL12/2022 South - Fe (%) by Li borate fusion ICP-MS in areas D & E on 1:250,000 geology.

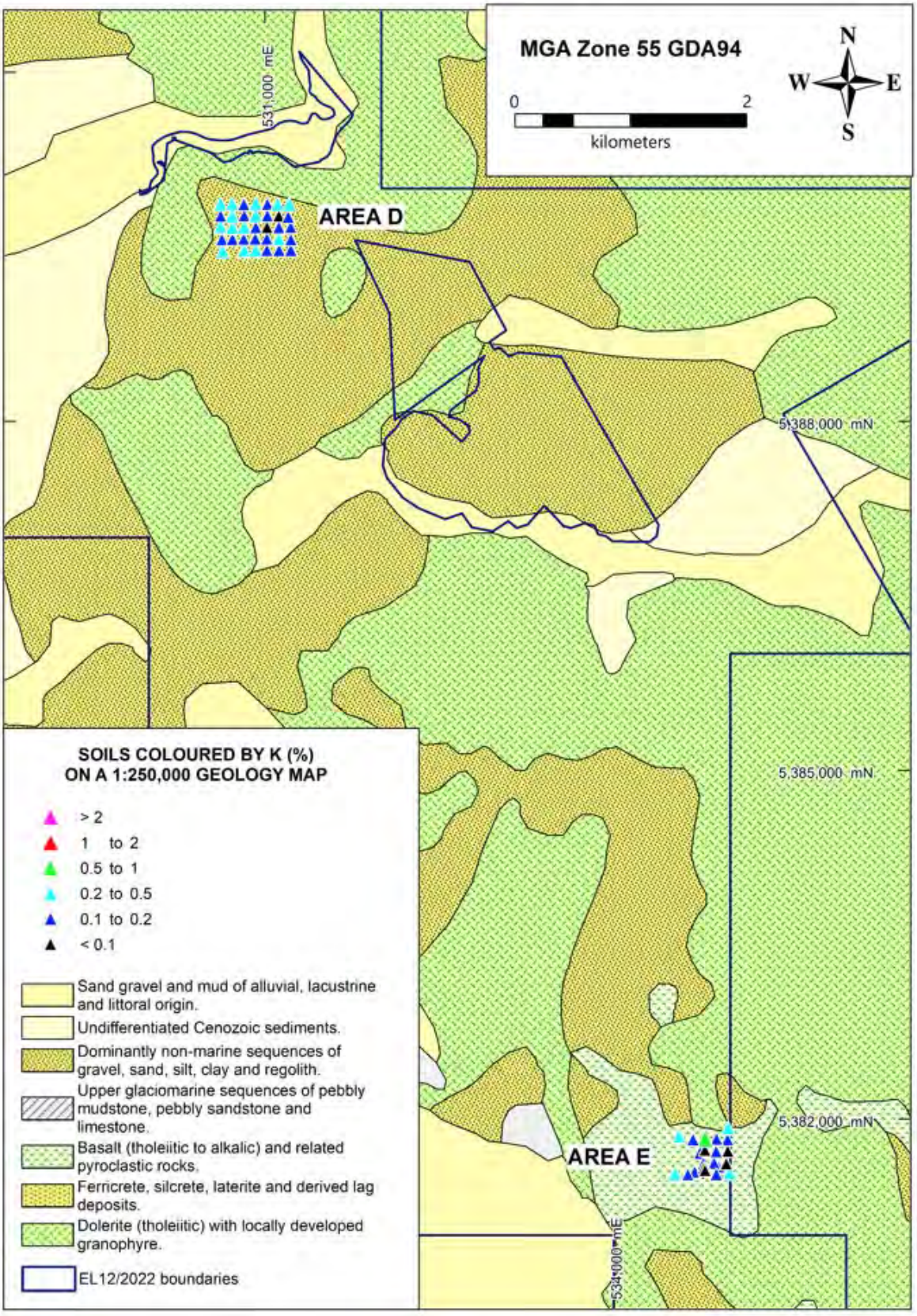

Figure 13: EL12/2022 South - K (%) by Li borate fusion ICP-MS in areas D & E on 1:250,000 geology

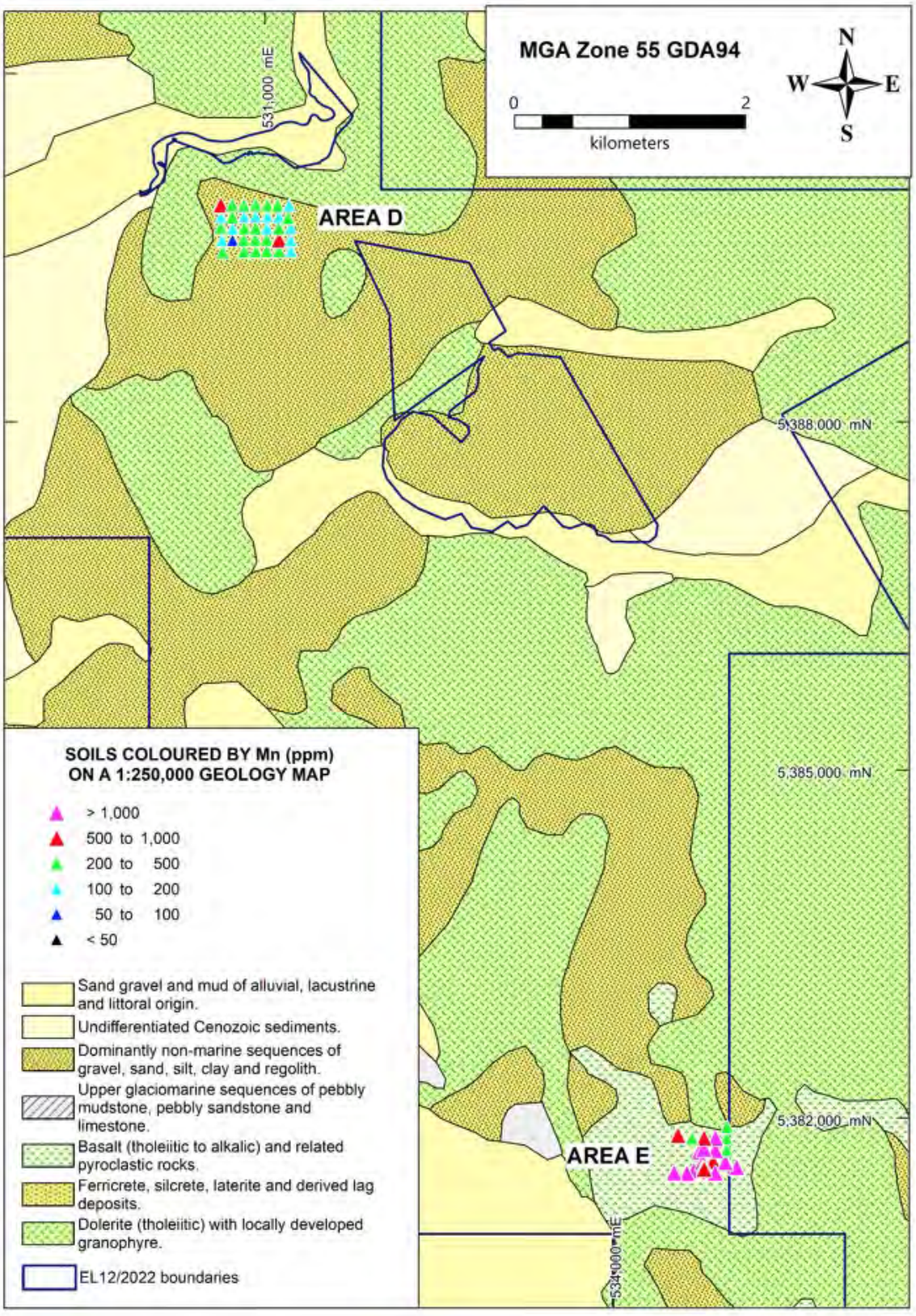

Figure 14: EL12/2022 South - Mn (ppm) by Li borate fusion ICP-MS in areas D & E on 1:250,000 geology

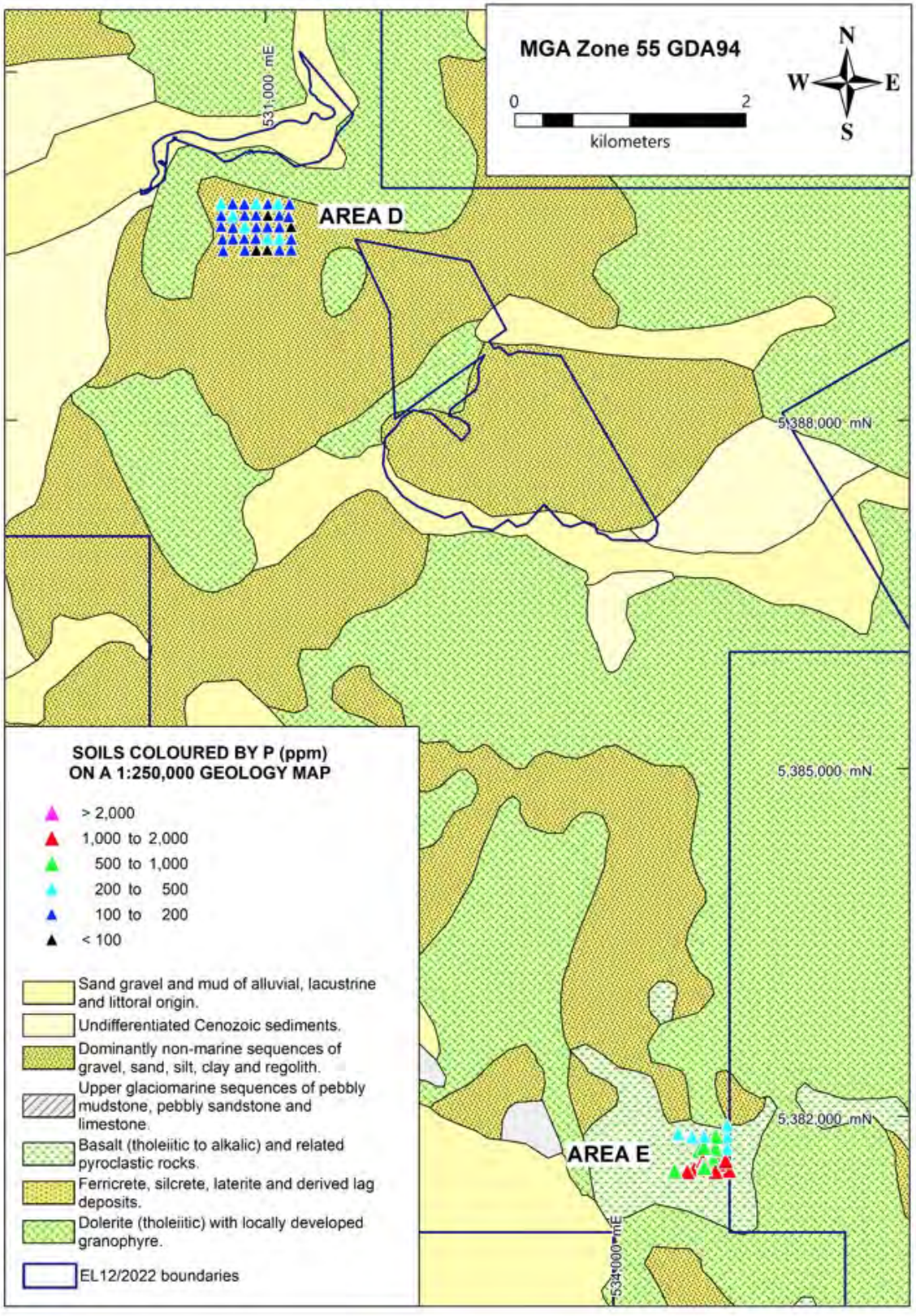

Figure 15: EL12/2022 South - P (ppm) by Li borate fusion ICP-MS in areas D & E on 1:250,000 geology

7 Conclusions and Recommendations

While the planned soil program was significantly reduced by cultural issues, the presence of significantly elevated (>100 ppm) Nd and Ce in the northern and southern targets confirm REE prospectivity of bauxite and tertiary basalt areas within EL12/2022. The elevated REE, Nd particularly >100 ppm, flanking the bauxite areas is an encouraging sign that saprolitic clays developed over the alkaline Tertiary basalts within EL12/2022 may be REE enriched. Further soil sampling targeting deeply weathered alkaline Tertiary basalt areas within EL12/2022 may confirm these preliminary observations.

Cultural and agricultural development would likely be a significant ongoing impediment to the exploration of EL12/2022. This, along with a change in company direction refocusing exploration efforts outside of Tasmania, meant the decision was made to relinquish the lease, despite the preliminary signs of reasonable prospectivity for economic grades of REE in the area.

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