Geological Evolution Report

TELLUS

SANDY RIDGE PROJECT

WESTERN AUSTRALIA

REGIONAL GEOLOGY and GEOLOGICAL EVOLUTION

Produced for

Tellus Holdings Ltd

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EXECUTIVE SUMMARY

Introduction

This report summarises the regional and local geology and the geological evolution of Tellus Holding Ltd's Sandy Ridge Project, which is located 120km northeast of Southern Cross in Western Australia. It also discusses potential geological events that might affect the surficial materials within the project area.

Geological Setting

The project is located within the Archean Yilgarn Craton, a crustal block that covers a large part of southern Western Australia. The craton formed between 3000 and 2600 million years ago and its current relatively flat topography largely represents an extremely old Proterozoic erosion surface that has subsequently been modified by weathering, further partial erosion, and local sedimentation, resulting in a complex regolith. The current landforms have been in place for about 250 million years and the Yilgarn Craton has been tectonically stable for ten times that period.

The project area is over a body of weathered granite, which was emplaced about 2700 million years ago.

Project Geology

The project is within a region in which nearly intact deep weathering profiles of 30-50m depth have been retained on broad upland topography. The surficial weathered materials in the project area have been formed over a period of more than 200 million years. The resultant profile typically consists of, from the surface down: sand and gravel, silcrete, kaolinite, saprock, and partly oxidized granite.

Current Weathering and Erosion

Current weathering and erosion in the area is extremely slow. The present surface in the project area has not changed significantly for at least the last 2.6 million years, except for the addition of wind-blown sand, and redistribution of lateritic pebbles.

The minerals constituting the lateritic, silcrete, and kaolinite layers are chemically stable end members of the weathering process and the present semi-arid climate is not conducive to chemical weathering. In addition, the project area contains no active stream channels and is distant from any major drainage system. Consequently, the area is not presently subject to water erosion. Wind erosion is very limited, as the sandplain is well covered with native vegetation.

Future Weathering and Erosion

It is difficult to envisage a scenario under which a significant change to the present minimal rates of erosion or weathering could occur at the project site, within, say, 10 million years.

The Earth is currently in an interglacial period. However, if ice age conditions resume, significant erosion of the silcrete or underlying kaolinised regolith is highly unlikely to occur, as these layers were not affected during any of the previous ice ages over the last 2.6 million years.

In the event of further climate warming, current predictions from the Department of the Environment and the IPCC are for lower rainfall and higher temperatures for the region. Under such conditions there would be no reason to expect increased weathering or erosion.

Potential Geological Hazards

Earthquakes

The project area is in an area of very low earthquake activity and has the lowest possible Earthquake Hazard Rating. No moderate or strong earthquakes have been recorded within 200km of the site over the last 60 years, and the nearest quake in that time period classified as minor or light was centred about 80km away.

Tectonic Movement

The project is within the central portion of the eastern section of the Indo-Australian Tectonic Plate, which is, in general, moving at around 5.6cm per year towards the northeast. If the movement were continued at the same rate, the project area could be expected to approach the present position of the seismically active section of New Guinea in about 60 million years.

Glaciation

There is no evidence that the central portion of the Yilgarn Craton has been subject to glaciation, even during the most recent ice age during the last 70,000 years. The nearest evidence of glaciation is about 300km to the east, where approximately 300-million-year-old glacial sediments lie above the Archaean rocks.

The present north-easterly movement of the Australian continent towards the tropics and away from the South Pole suggests that there is no likelihood of a future glaciation of the area, at least in the next 60 million years.

Igneous Activity

There has not been any igneous activity in the region for over 1000 million years and the most recent volcanic activity in southern WA was 140 million years ago about 525km to the southwest of the project area within the Perth Basin. There is no reason to expect surface or sub-surface volcanic activity in the region during the next 50 million years.

Nearby Mining Activity

The closest current mining activity is at the Mt Walton East Intractable Waste Disposal Facility, which is about 8km to the east-southeast. The mining consists of the excavation of pits into the regolith formed over Archean granite.

Current iron ore open-cut mining is being carried out at Carina, 14km to the southwest, and at Koolyanobbing, about 73km to the southwest. To the east, the nearest operating mines are the Jenana open-cut gold mine 60km to the northeast and the New Galley underground mine 87km to the southeast.

GEOLOGICAL SETTING

The Sandy Ridge Project is located within the Archean Yilgarn Craton that comprises an area of approximately 657 000 km^2 and forms one of the largest intact segments of the Archean crust on Earth (Figure 1). The bulk of the craton is thought to have formed between 3000 and 2600 million years ago, with some gneissic terranes exceeding 3000 million years in age (Anand and Butt, 2010).

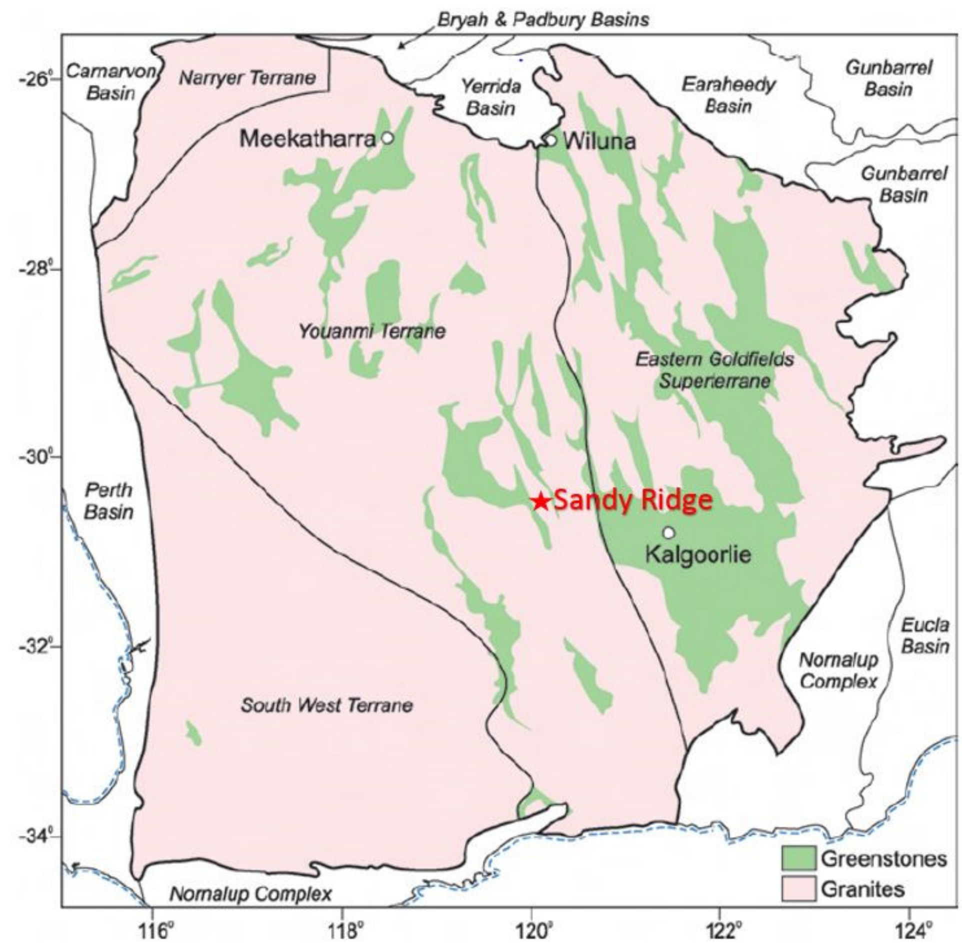

Figure 1 Yilgarn Craton

The surface of the Yilgarn Craton, the Yilgarn Plateau, has low relief and, on a regional scale, probably represents a Proterozoic* erosion surface. This extremely old surface has subsequently been modified by weathering, partial erosion, and sedimentation, resulting in a complex regolith** (Anand and Butt, 2010). Broad landforms have been in place for about 250 million years and the Yilgarn Craton has been tectonically stable for ten times that period.

* The Proterozic is that period of time between approximately 2500 and 540 million years ago.

** The regolith is the combination of weathered rock, soil, and other unconsolidated or cemented material that forms a younger blanket over unweathered bedrock.

GEOLOGICAL HISTORY

Bedrock Geology

The geological history of the project area is relatively simple. It involves the emplacement of a granitic body within the crust about 2700 million years ago (Nelson, 2002). Over the next 2000 million years the overlying rocks were eroded, resulting in a relatively flat landscape, which has been above sea-level for at least the last 540 million years (Figure 2), during which time it has been subject to various weathering events as it has undergone different climatic regimes.

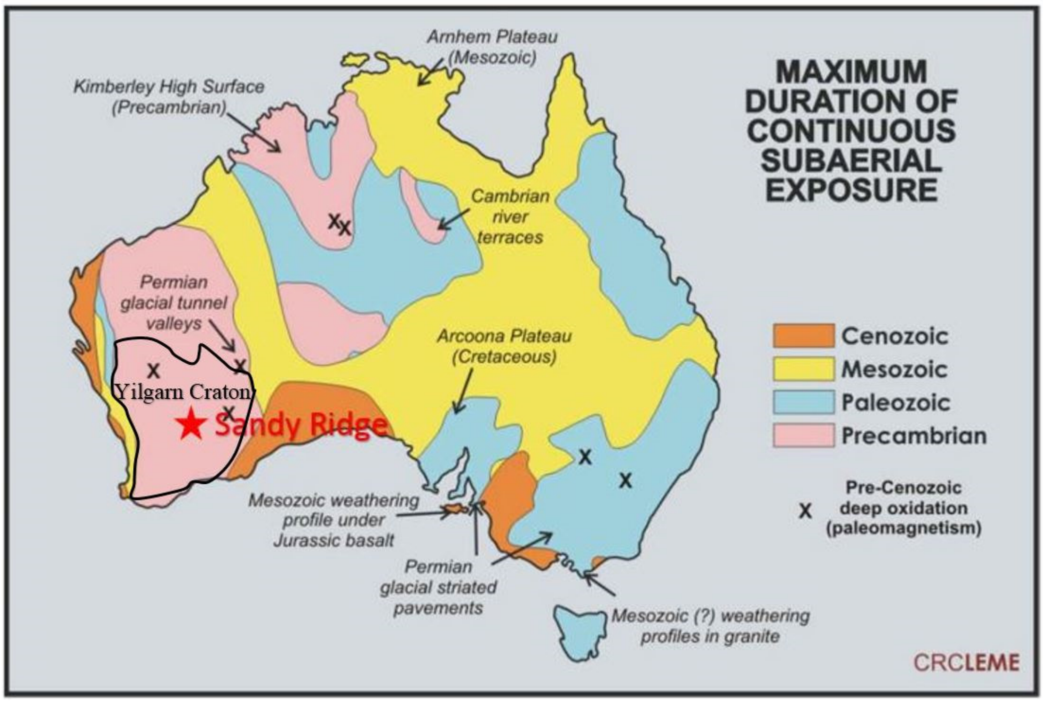

Figure 2 Sandy Ridge Project location within area that has been above sea level for at least 540 million years (from Pillans, 2005)

The regional geology is shown on Figure 3, which displays interpreted bedrock geology. Various granitic bodies are shown in shades of pink, basic volcanic rocks in green, ultrabasic rocks in purple, banded iron formations in grey, and metamorphosed sediments in yellow (Martin *et al*, 2014). The project is located in the centre of a 160km long and 20km wide north-northwest trending granitic body, which intruded older granitic and volcanic rocks.

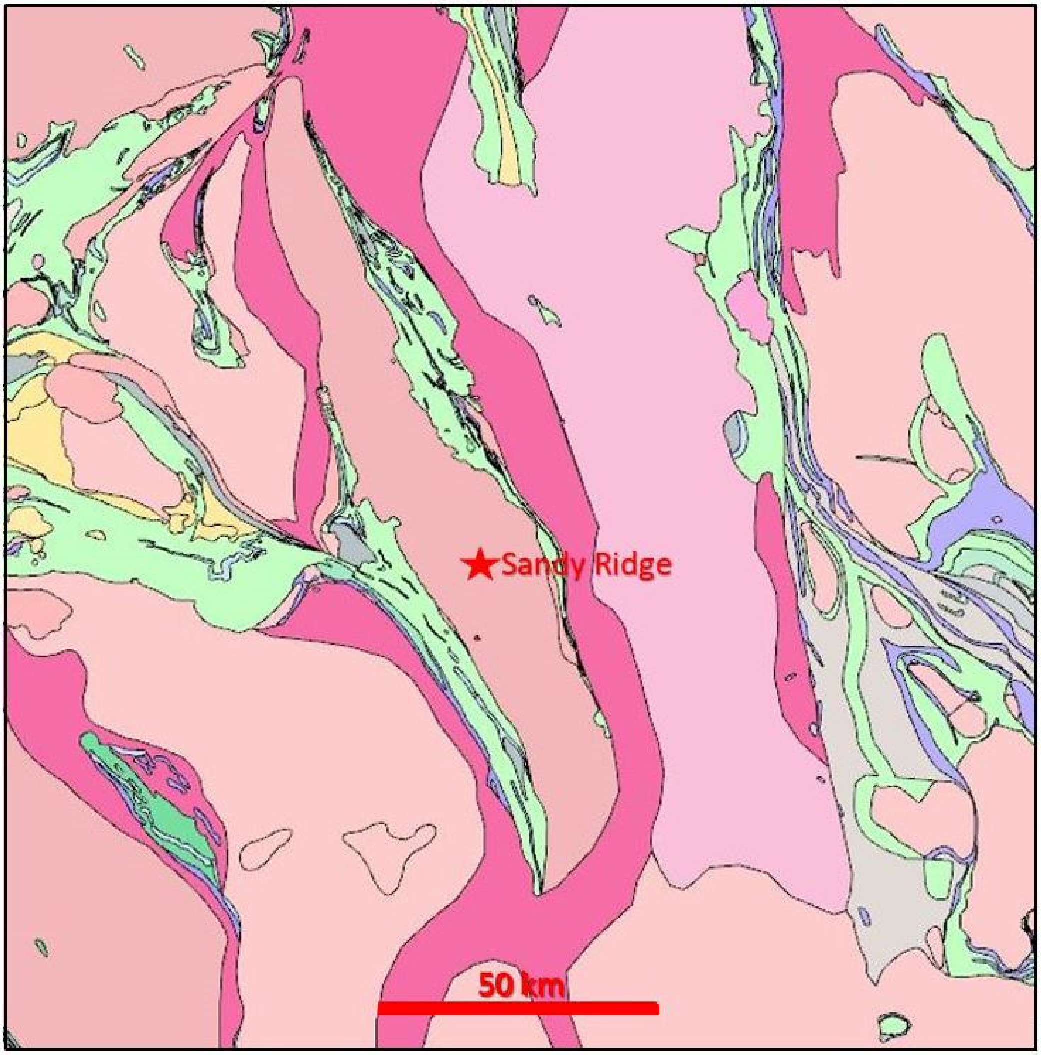

Figure 3 Interpreted bedrock geology of project region (Martin *et al*, 2014)

Regolith Geology

The project is within a region classified as Incipient Etchplain, in which nearly intact deep weathering profiles of 30-50m depth have been retained on broad upland divides (Anand and Paine, 2002). The surficial materials above the fresh granite in the project area have been formed over the last 260 million years (Anand and Butt, 2010). The regolith formation over the Yilgarn Craton is summarised in Figure 4.

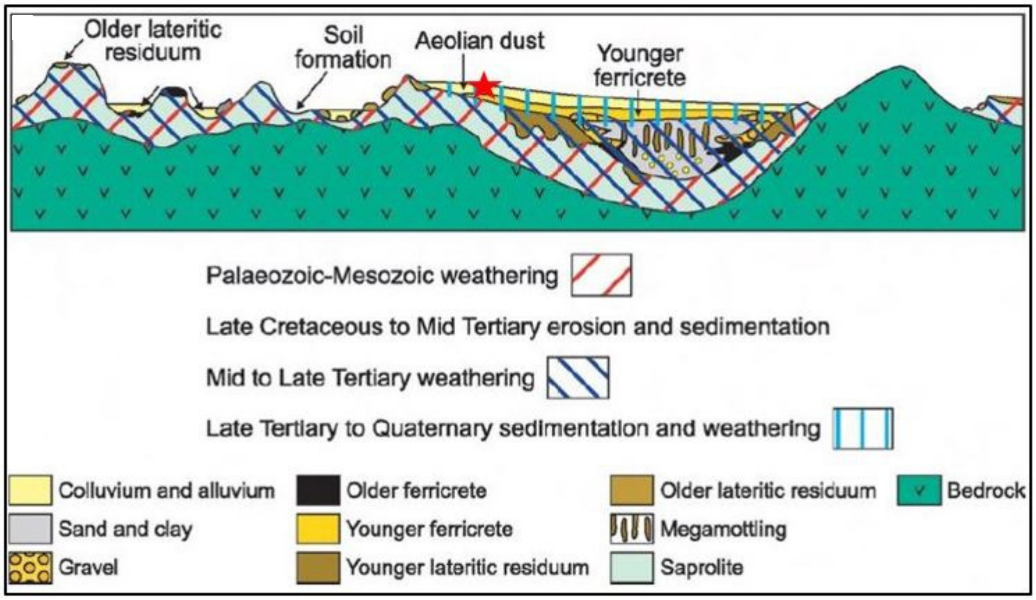

Figure 4 Schematic section showing regolith units over Yilgarn basement – the red star indicates the regolith profile at Sandy Ridge (after Anand and Butt, 2010)

Within the project area the granite has been subjected to various weathering processes, including kaolinisation. A typical profile, is:

- 0-1m: Sand;
- 1-3m: Sandy gravel;
- 3-5m: Silcrete;
- 5-7m: Mottled zone;
- 7-23m: Kaolin;
- 23-27m: Saprock;
- 27m: Oxidized granite; and
- 32m+: Granite

Figure 5, a photograph of chip trays from the air-core drill-hole SRAC204, drilled by Tellus in April 2016, shows a similar lithological profile.

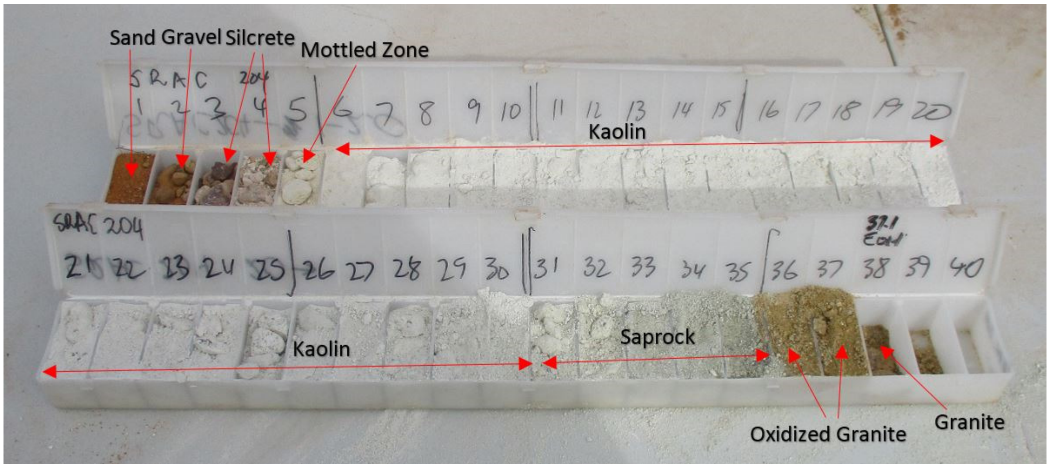

Figure 5 Regolith samples from air-core drill-hole SRAC204

Figures 6 and 7 show a waste disposal pits excavated into the regolith at Mt Walton East, which is 8km to the east-southeast of the project area. The regolith profiles within the two areas are similar.

Figure 6 Pit at Mt Walton East Waste Disposal Facility cut down through lateritic and silcrete layers into the mottled zone (from Dept of Finance, 2016)

Figure 7 Pit at Mt Walton East Waste Disposal Facility cut down through the mottled zone into the kaolinite zone (Dept of Finance, 2013)

The formation of the kaolinised granite and the saprock occurred during two extended periods during which humid and mainly temperate to sub-tropical climates promoted chemical weathering. The first was from the late Permian to the late Cretaceous (from about 260 to 70 million years ago) and the second was through the Eocene to the mid-Miocene (from about 55 to 15 million years ago).

Since the mid-Miocene (ca 15 million years ago) a change to semiarid to arid conditions caused the induration and cementation of the upper regolith by iron oxides, silica, aluminosilicates, or carbonates (Anand and Butt, 2010). At Sandy Ridge these changes caused the formation of the relatively minor mottled zone (caused by the deposition of iron oxides), the silcrete layer (caused by silica cementation), and the pisolitic laterite (caused by iron oxide deposition and cementation). Finally, during the Quaternary Ice Ages, which began about 2.6 million years ago, wind-blown sand formed the final cover.

The laterite, silcrete, and kaolinite are the end products of chemical weathering of the granite from which they have been formed. The major minerals of the unweathered granite in the area are feldspars (ca 65%), quartz (ca 20%), and biotite (ca 10%).

The feldspars weather to form kaolinite, which is stable and resistant to further chemical change. The quartz is resistant to chemical weathering and may form a near surface quartz fragment rich residuum, which may then be cemented silica to form silcrete. The silica has previously been dissolved from other minerals in the weathered rock and transported towards the surface in groundwater. The dissolved iron from the weathered biotite also travels towards the surface, where it is precipitated as iron oxide minerals to form laterite. These minerals: kaolinite, silica, and iron oxides are chemically stable end products that are resistant to further chemical weathering (Anand and Paine, 2002).

Current Weathering and Erosion

Current weathering and erosion in the area is extremely slow.

The present semi-arid climate, with a median annual rainfall of about 250mm and an annual evaporation rate of about 2400mm (Bureau of Meteorology, 2016), is not conducive to chemical weathering, which is active in humid temperate to tropical climates, but much less active in semi-arid and arid climates.

The present surface has not changed for at least the last 2.6 million years, except for the addition of wind-blown sand, and redistribution of lateritic pebbles. The retention throughout the general area of the previously cemented surficial silcrete indicates the lack of erosion.

The project area is situated at an elevation of about 470m in an area of low relief. It contains no active stream channels and no known paleo-channels (Figure 8). It is also distant from any major drainage system (Figure 9). The near horizontal sandy surface and lack of stream channels results in rain water being absorbed into this surface unit, rather than running off with resulting water erosion. Wind erosion is very limited, as the sandplain is well covered with native vegetation.

It is the combination of a virtually flat plateau, cemented surface layers, and semi-arid conditions that creates the stable geomorphology of the area.

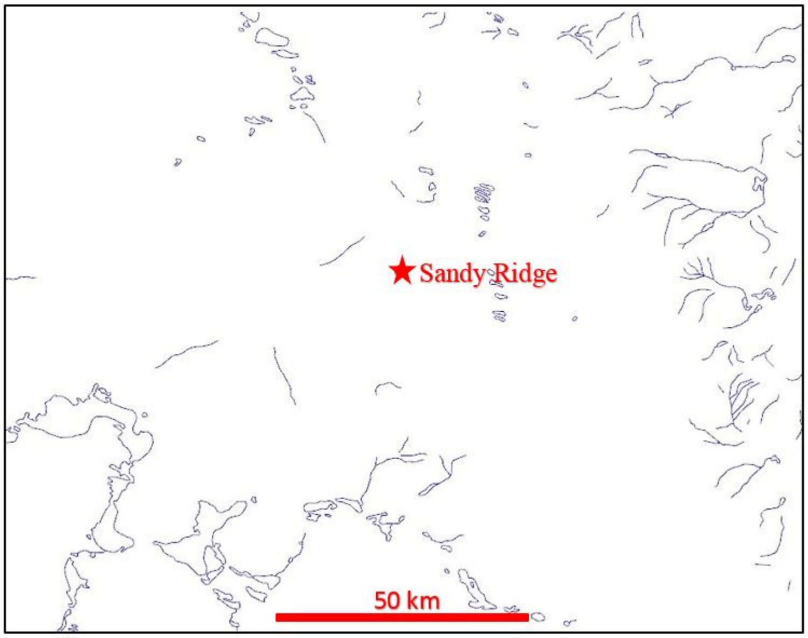

Figure 8 Drainage Map of the Sandy Ridge region (from GSWA GeoVIEW, 2016)

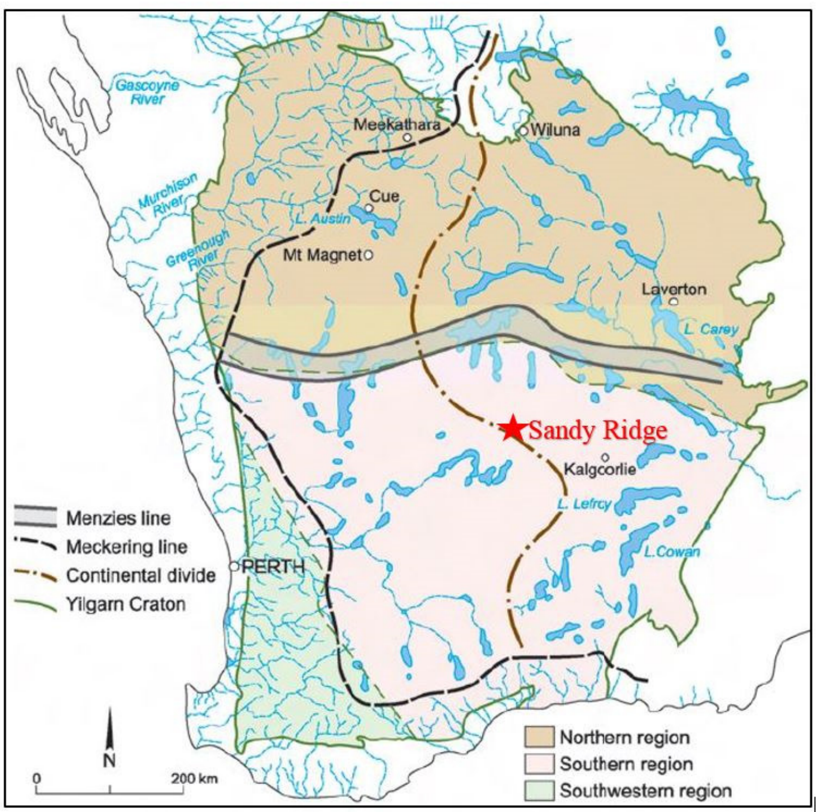

Figure 9 Drainage systems of the southwest of WA (after Anand and Butt, 2010)

Future Weathering and Erosion

It is difficult to envisage a scenario under which a significant change could occur at the project site, within, say, 10 million years, from the present minimal weathering and erosional conditions.

The current landforms at the site must have been in place for about 260 million years, as the regolith, which has formed since this time is still in place, un-eroded; although erosion of this ancient regolith (and deposition of the eroded material) has occurred in other areas of the craton (see Figure 4). The Yilgarn Craton itself has been tectonically stable for ten times that period. Neither mountain building nor continental breakup is considered to be likely to occur in the region.

In broad scale climatic terms, the Earth is currently within an interglacial period, within a larger ice age that began 2.6 million years ago. Should the current ice age continue, then another glacial period can be expected to occur within a few tens of thousands of years. During the previous ice age arid conditions caused vegetation loss and movement of wind-blown sand. However, no significant erosion of the silcrete or kaolinised regolith occurred, probably partly because the sand-stripped surface was resistant to wind erosion owing to its silica and iron cemented nature. The only glaciers on the Australian mainland at this time were in the Snowy Mountains. The location and topography of Western Australia is such that a similar glacial period would not cause glaciation in the region.

On the other hand, if general climate warming occurs, current predictions from the Department of the Environment and the ICCP are that the region would be subject to less rainfall and to warmer temperatures (Dept. of the Environment, 2016; Reisinger *et al*, 2014). Under such conditions there would be no reason to expect either increased weathering or significant erosion.

Earthquake History

The project area is in an area of very low earthquake activity. No moderate or strong earthquakes have been recorded within 200km of the site over the last 60 years, and the nearest quake in that time period classified as minor or light was centred about 80km away.

Figure 10, the southwestern portion of the 2012 Australia Earthquake Hazard Map, shows that the project is situated in an area of the lowest hazard rating in the Australian continent, which itself is an area of relatively low earthquake risk. The contours on the map relate to the size of the maximum expected earthquake generated forces within a 500-year period. The project area is within a region in which this force is predicted to be less than 1% that of gravity (Burbidge, 2012).

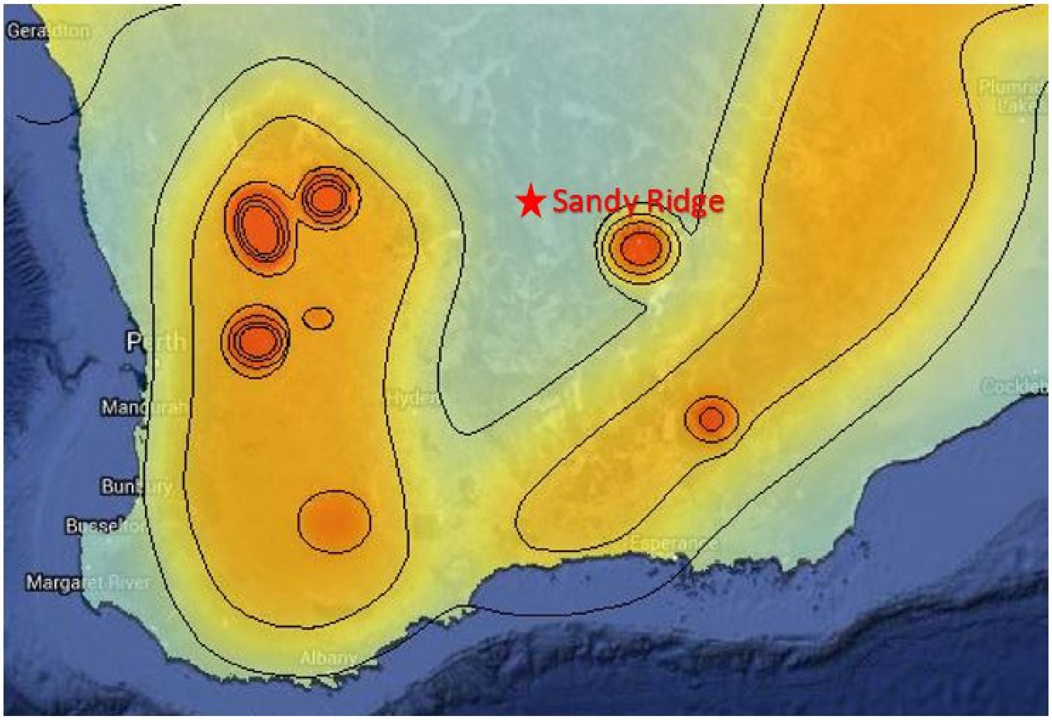

Figure 10 Sandy Ridge Project location in area of low Earthquake Hazard (from Geoscience Australia Earthquake Hazard Map, Burbidge, 2012)

Earthquake strength is measured on a logarithmic magnitude scale; in which each single figure increase corresponds to a ten-fold increase in released energy. Earthquakes are classified in classes ranging from minor to great, depending on their magnitude (Table 1). The common effects of earthquakes of varying magnitude are shown in Table 2.

Table 1 Earthquake Classes (from Michigan Tech, 2016)

Class	**Magnitude**
Great	8 or more
Major	7 - 7.9
Strong	6 - 6.9
Moderate	5 - 5.9
Light	4 - 4.9
Minor	3 -3.9

Table 2 Earthquake Effects (from Michigan Tech, 2016)

Magnitude	Earthquake Effects
2.5 or less	Usually not felt, but can be recorded by seismograph.
2.5 to 5.4	Often felt, but only causes minor damage.
5.5 to 6.0	Slight damage to buildings and other structures.
6.1 to 6.9	May cause a lot of damage in very populated areas.
7.0 to 7.9	Major earthquake. Serious damage.
8.0 plus	Great earthquake. Can totally destroy communities near the epicentre.

Figure 11 shows the location of earthquakes of Magnitude 3 or greater that have occurred in southern WA in the last 60 years. The cluster to the east-southeast of Sandy Ridge is probably related to destressing of the crust due to the mining activity in the Kalgoorlie area.

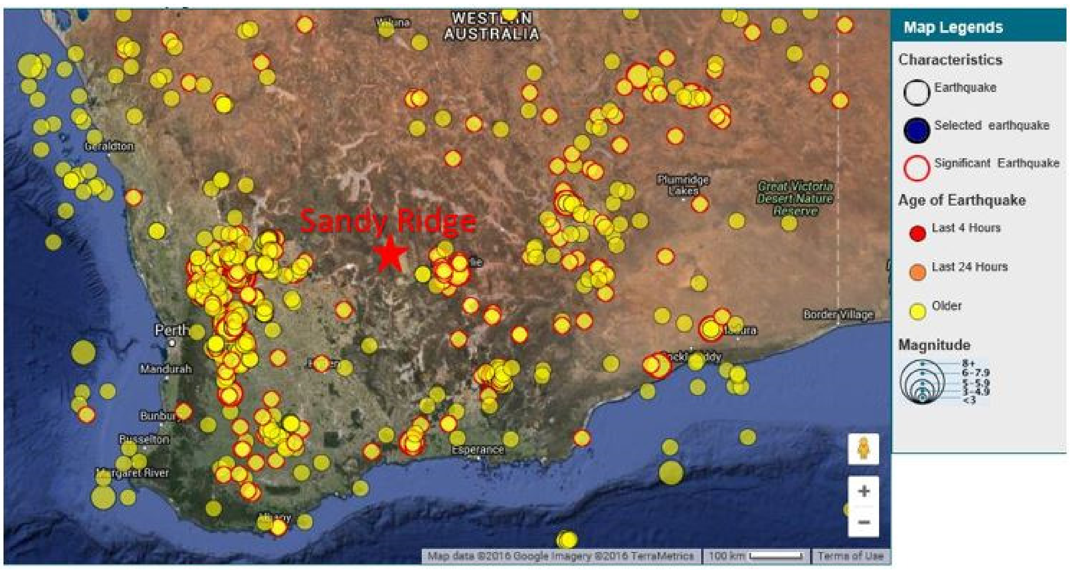

Figure 11 Earthquake locations of Magnitude 3 and greater from 1955 in southern WA (after Geoscience Australia, 2016)

Within 200km of the Sandy Ridge Project the greatest magnitude quake measured 4.7 and the closest (a magnitude 3) occurred about 80km to the southeast (Figure 12). Figure 13 shows the location of earthquakes in the same area classified as less than minor. The closest of these was 20km from the project area.

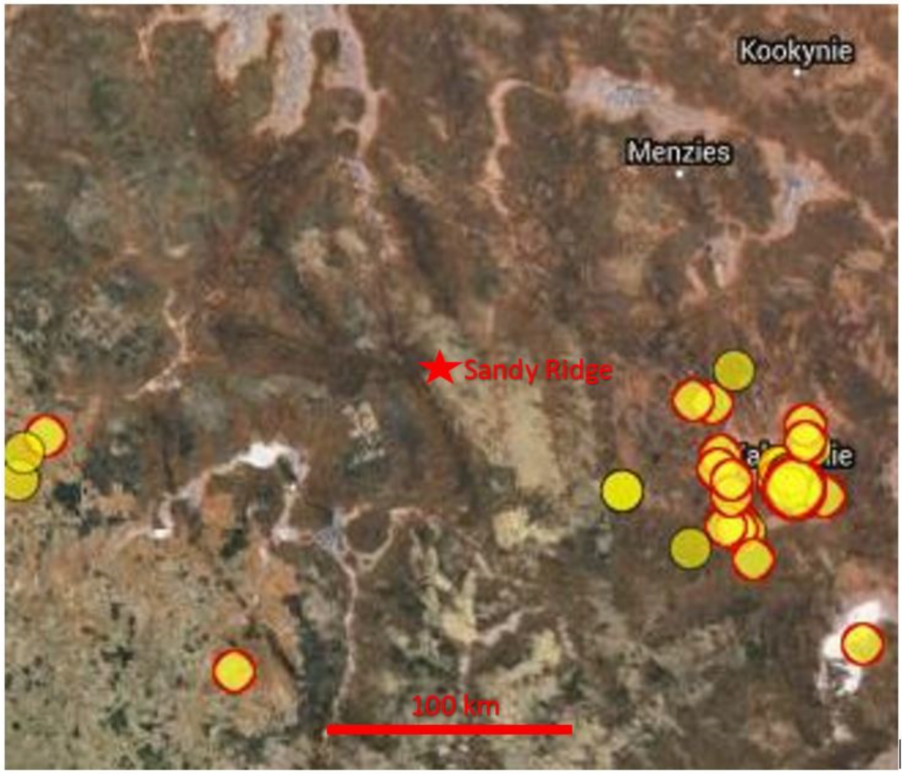

Figure 12 Earthquake locations of Magnitudes 3 to 4.7 from 1955 within approximately 200km of Sandy Ridge Project (after Geoscience Australia, 2016)

Figure 13 Earthquake locations of Magnitude 2 to 2.9 from 1955 within approximately 200km of Sandy Ridge Project (after Geoscience Australia, 2016)

Tectonic Movement

The Sandy Ridge Project, situated on the Archaean Yilgarn Shield, is within the central portion of the eastern section of the Indo-Australian Tectonic Plate (Figure 14). This eastern section is, in general, moving at around 5.6cm per year towards the northeast (Hammonds, 2012). This rate of movement and the location of the project within a seismically quite portion of a stable shield is very unlikely to cause any significant tectonic activity (uplift, subsidence, or fracturing) in any time frame relevant to the project. However, if the present movement continues at the same rate, the project area can be expected to approach the present position of the seismically active section of New Guinea in about 60 million years.

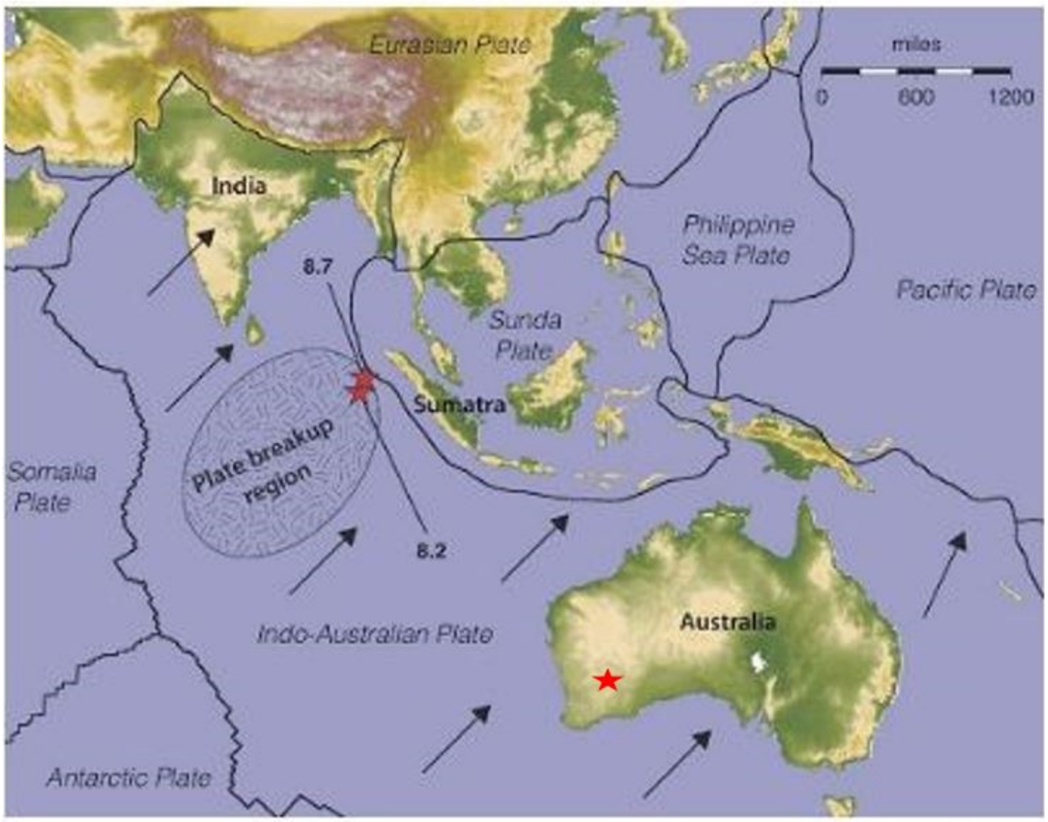

Figure 14 Sandy Ridge Project location within Indo-Australian Plate (after Hammonds, 2012)

Glaciation

There is no evidence that the central portion of the Yilgarn Plateau has been subject to glaciation, even during the most recent Ice Ages of the last 70,000 years, when the only areas in Australia where glaciers were present were the Snowy Mountains and Tasmania (Barrows and Fifield, 2016). The nearest evidence of glaciation is about 300km to the east, near the eastern edge of the craton, where approximately 300-million-year-old glacial sediments of the Paterson Formation lie above the Archaean rocks (Martin *et al*, 2014).

The present north-easterly movement of the Australian continent towards the tropics and away from the South Pole suggests that there is no likelihood of a future glaciation of the area, at least in the next 60 million years.

Igneous Activity

There has not been any igneous activity in the region for over 1000 million years. The Archaean granite that constitutes the bedrock in the project area has been dated at around 2700 million years (Nelson, 2002). A Proterozoic age east-west trending dyke intruded the granitic basement about 20km south of the project area. Similar dykes within the Yilgarn Craton have been dated at ca 2420 million years (Nemchin and Pidgeon, 1998) and at ca 1210 million years (Pidgeon and Nemchin, 2001).

The most recent volcanic activity in southern WA was within the Perth Basin near Bunbury, about 525km to the southwest of the project area. The outpouring of this basalt occurred about 140 million years ago during the breakup of the Gondwana supercontinent (Martin *et al*, 2014).

There is no reason to expect that there will be any sub-surface or surface volcanic activity within this part of the stable craton for at least 50 million years.

Nearby Mining Activity

Operating and proposed mines within the region are shown on Figure 15.

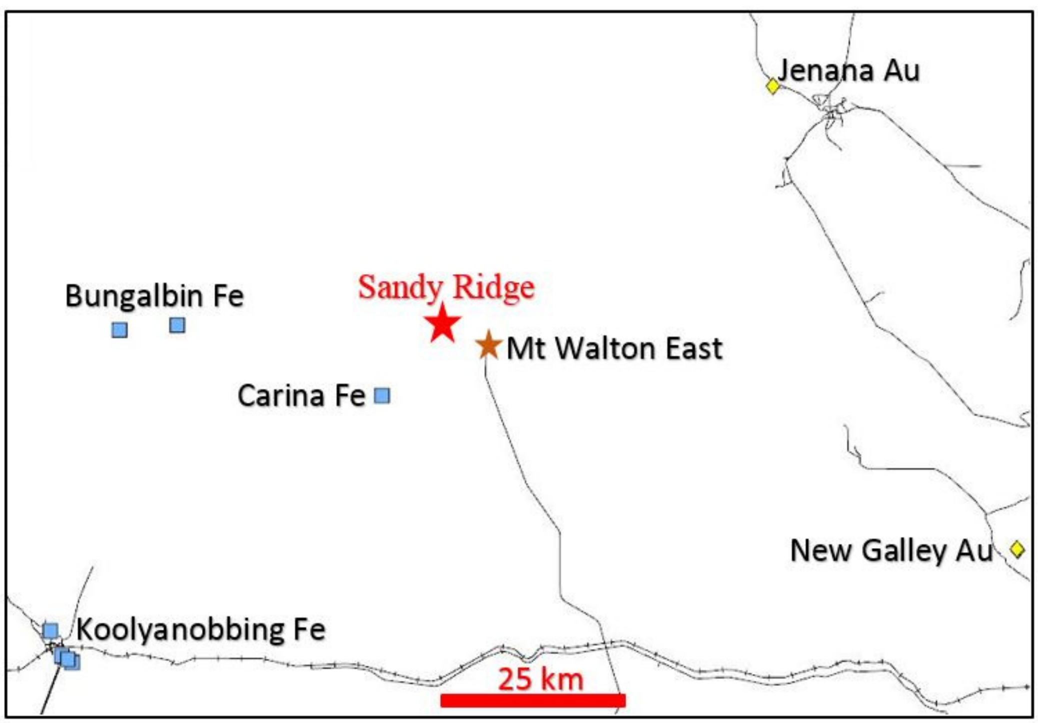

Figure 15 Operating and proposed mines (after GSWA GeoView)

The closest current mining activity is at the Mt Walton East Intractable Waste Disposal Facility, which is about 8km to the east-southeast. It is managed by the Building Management and Works division of the Department of Finance of the Government of

Western Australia. The mining consists of the excavation of pits into the regolith formed over Archean granite (Figures 6 and 7).

Current iron ore open-cut mining is being carried out at Carina, 14km to the southwest, by Polaris Metals NL, which also has a proposed an open-pit at Bungalbin. Iron ore mining is also being carried out at Koolyanobbing, about 73km southwest of Sandy Ridge.

Further east, the nearest operating mines are the Jenana open-cut gold mine 60km to the northeast and the New Galley underground mine 87km to the southeast.

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GLOSSARY

Air-core	A method of drilling by which a sample, often of unconsolidated material, is passed up the inner tube of a drill stem
Archean	The oldest rocks of the Precambrian Era; older than about 2,500 million years
Banded Iron Formation	Chemical sedimentary rock composed mainly of finely alternating layers of silica and iron oxide
Basalt	Dark coloured, fine-grained volcanic rock formed by the cooling of a mafic lava
Basic volcanic	Volcanic rock with a significant content of dark coloured ferromagnesian minerals
Bedrock	Solid rock underlying surficial deposits
Biotite	A dark platy mineral of the mica group
Craton	A part of the earth's crust that has been stable and undeformed**,** except perhaps by faulting, for a long period of time
Cretaceous	The final period of the Mesozoic Era; from about 145 to 66 million years ago
Dyke	A tabular igneous intrusion that cuts across the intruded rocks
Eocene	An epoch of Cenozoic Era, from about 56 to 34 million years ago
Erosion	The action of surface processes (such as water flow or wind) that remove soil, rock, or dissolved material from one location on the Earth's crust, then transport it away to another location
Feldspar	A silicate mineral; formed in igneous and metamorphic rocks; light coloured
Formation	A formal name for an, often sedimentary, rock unit
Glaciation	the process in which land is covered by glaciers, or the effect this process has of eroding the underlying rocks or covering them with glacial sediments

Gneiss	High-grade metamorphic rock composed of alternating bands respectively rich in light and dark coloured minerals
Granite	A light coloured, relatively coarse-grained igneous rock formed at depth beneath the Earth's surface; comprises large sections of continental crust
Greenstone	A field term for metamorphosed mafic and ultramafic igneous rocks
Igneous	Rock formed by solidification of hot mobile material termed magma
Intrusion	A body of igneous rock that invades older rocks
Kaolinisation	The weathering or alteration process in which the clay mineral kaolin is formed
Kaolin or kaolinite	A white clay mineral with the chemical composition $Al_2Si_2O_5(OH)_4$.
Interglacial	A geological interval of warmer global average temperature lasting thousands of years that separates consecutive glacial periods within an ice age. The current interglacial began about 11,700 years ago.
Laterite	An iron oxide-rich rock formed near the Earth's surface by weathering processes
Mesozoic	The era of geological time between about 66 and 250 million years ago
Metamorphic	A rock that has been altered by physical and chemical processes involving heat, pressure, and / or fluids
Miocene	The epoch of geological time within the Cenozoic Era between about 5 and 23 million years ago
Oxidized	A rock that has been exposed to air and water causing its minerals to change by the addition of oxygen (and perhaps carbon and water).
Paleozoic	The era of geological time between about 250 and 540 million years ago
Permian	The period of geological time between about 250 and 300 million years ago
Proterozoic	The eon of geological time between about 540 and 2500 million years ago

Quartz	A mineral composed of silicon and oxygen; forms as hard colourless crystals; a common component of sand.
Quaternary	The period of geological time from about 2.6 million years ago to the present.
Regolith	The surface layer of loose incoherent rock material that lies above "bedrock"; formed by deposition or in-situ weathering.
Saprock	**Saprock** is the first stage of weathering. It consists of partially weathered minerals and as yet unweathered minerals
Sediment	Rock formed by the deposition of solids from water
Seismic	Relating to earthquakes or other vibrations of the earth and its crust.
Silcrete	A cemented surficial rock in which the cement is silica
Silica	The compound SiO_2; quartz is composed of silica
Siliceous	Containing the mineral silica
Silicified	A rock that has been alterated or replaced by silica
Tectonic plate	A slab of the Earth's crust that "floats" and slowly moves on the underlying mantle
Tectonics	Regional scale crustal movements; either shifting the crust as a whole (plate tectonics) or deforming and fracturing it during an episode of tectonism
Terrane	A regional-scale group of rock units
Tertiary	The period of geological time between about 2.6 and 66 million years ago
Ultramafic	Dark-coloured igneous rock containing virtually no quartz or feldspar and composed essentially of ferromagnesian silicates, mainly olivine and pyroxene
Volcanic	Descriptive of rocks originating from volcanic activity
Weathering	The process by which rocks are broken down into small grains and soil by physical or chemical means

DECLARATIONS

This report has been prepared by J. John G. Doepel. Mr Doepel is a Principal Geologist and the Director of Continental Resource Management Pty Ltd ("CRM"). He has over 30 years' experience in the mineral industry as a geologist, including thirteen years as a consultant with CRM. He has carried out exploration on numerous projects, exploring for a wide variety of metals and minerals. He has completed resource estimations for a variety of deposit types including many for industrial minerals. Mr Doepel holds a Bachelor of Science with Honours and a Graduate Diploma in Forensic Science from the University of Western Australia and a Diploma of Teaching from Curtin University. He is a Member of the Geological Society of Australia, of the Australasian Institute of Mining and Metallurgy, and of the Australian Institute of Geoscientists.

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CRM's assessment of the properties included in this report is based upon technical information provided by Tellus. Reference has been made to other sources of information, published and unpublished, including government reports and reports prepared by previous interested parties, where it has been considered necessary. CRM has endeavoured, by making reasonable enquiries, to confirm the authenticity and completeness of the technical data used in the preparation of this report and to ensure CRM had access to all relevant technical and other information.

The statements contained in this report are given in good faith and have been derived from information believed to be reliable and accurate, and supplemented by our own investigations. We have relied upon this information and have no reason to believe that any material facts have been withheld from us. We do not imply that we have carried out any type of audit on the technical, accounting or other records of Tellus, or that our assessment has revealed all of the matters which an audit or more extensive examination might disclose at the date of this report. The conclusions are based on the reference date of the 6th May 2016.

J. Doepel,

6th May 2016