

Director – Resource Assessments, Development Assessment
Department of Planning and Environment
Locked Bag 5022
Parramatta NSW 2124

14 June 2022

RE: Exhibition of Dendrobium Mine Extension Project (Application No SSI-33143123)

Dear Sir/Madam,

Thank you for the opportunity to make a submission for the Dendrobium Mine Extension Project (SSI-33143123) (the **Project**). This submission replaces the earlier submission BlueScope made to the Independent Planning Commission in December 2020.

BlueScope is not seeking to address in this submission a range of aspects of the Project, including its revised environmental management strategy, environmental impact mitigation measures and monitoring. As steelmakers, we are not experts in these topics. However, we recognise South32 has taken considerable steps to address the concerns raised by the Independent Planning Commission in its assessment of the Project by reducing the proposed longwall mining area by 60 per cent to preserve Sydney's water catchment.

BlueScope supports the Project as it will enable the continued operation of the Dendrobium mine when existing mining operations in Area 3 cease, and the continued operation of the Dendrobium mine will support the ongoing operation and financial sustainability of metallurgical coal mining in the Southern Coalfield of NSW. In this context, the purpose of this submission is two-fold:

1. To emphasise the critical importance of a continuation of mining in the Southern Coalfield of NSW for the ongoing production of iron and steel at the Port Kembla Steelworks. Metallurgical coal supplies for BlueScope are reliant upon an ongoing commercially viable coal mining sector in the Southern Coalfield.
2. To reinforce the importance of South32's operations in the Illawarra (Illawarra Metallurgical Coal), including both the Dendrobium and Appin mines. Currently South32 supply around 60% of BlueScope's metallurgical coking coal requirements with a unique 'Illawarra blend' of 1 seam (Bulli seam) and 3 seam (Wongawilli seam) metallurgical coal for steelmaking at Port Kembla Steelworks. BlueScope has a long-term supply agreement with South32 to continue to deliver this important 'Illawarra blend' out to 2032. The nature of the contract is commercial-in-confidence.

Dislocated international supply chains caused by both the COVID-19 pandemic and military conflict have only heightened the importance of local manufacturing and sovereign capability. This coupled with significant investment by Government in renewable energy, defence projects and critical infrastructure, underscores the value of local metallurgical coal supply to support the ongoing competitiveness of the Port Kembla Steelworks.

Currently, there is no economically viable, commercial-scale alternative to the use of metallurgical coal in the blast furnace method of steelmaking, which is employed at Port Kembla Steelworks and this is likely to continue until alternative “green” steelmaking techniques become technically and economically viable. The Project will help to ensure continuation of mining in the Southern Coalfield, with BlueScope requiring a local and continued supply of metallurgical coal to the Steelworks until the transition to new and emerging low emissions technologies are available at commercial, viable scale.

About BlueScope Steel

BlueScope is a provider of innovative steel materials, products, systems, and technologies, headquartered in Australia with operations spread across North America, Australia, New Zealand, the Pacific Islands, ASEAN, China, and India.

We are one of the world’s leading manufacturers of painted and coated steel products, and with our strong expertise in steel we provide vital components for houses, buildings, structures, automotive and more. Our 14,900 people in 18 countries manufacture and market a wide range of branded products that include pre-painted COLORBOND® steel, zinc/aluminium alloy coated ZINCALUME® steel and the LYSAGHT® range of building products.

Our iron and steelmaking operations are located in Australia, New Zealand, and the United States.

BlueScope is Australia’s largest steel manufacturer, employing around 6,700 employees at more than 100 sites. The Company has a strong regional footprint, which in NSW includes facilities in the Illawarra, the Hunter, the Riverina, Central West and Western Sydney.

In the Illawarra, we operate Australia’s largest steel manufacturing plant, the Port Kembla Steelworks. The Steelworks employs approximately 3,500 full-time equivalent employees, and a further 1,500 contractors. In NSW, BlueScope generates \$10.3 billion in economic output per year, and is responsible for almost 1 per cent of Gross State Product, and approximately 19,000 jobs (direct and indirect)

BlueScope is progressing several major investments in NSW, which will create new jobs and increase domestic manufacturing capacity and capability, including to supply fast-growing sectors such as renewable energy.

These investments include:

- **Relining the No.6 Blast Furnace at Port Kembla Steelworks.** This project, which is currently subject to a feasibility study and has a preliminary indicative cost of around \$1 billion, will ensure we have a source of iron from 2026, when the currently operational No.5 Blast Furnace is expected to come to the end of its campaign. The reline project will incorporate significant investment to improve the environmental footprint of the facility, including reducing GHG emissions as well as paving the way for emerging abatement technologies to be installed when technically and commercially ready.
- **Advanced Steel Manufacturing Precinct.** In March 2022, BlueScope and its partners were awarded a \$55.4 million grant from the Federal Government’s Modern Manufacturing Initiative (MMI) to create an Advanced Steel Manufacturing Precinct. This grant will catalyse a further \$161.6 million of investment by BlueScope to modernise its plate mill and processing capabilities, establishing a wind tower fabrication facility, building a new pipe and tube mill, along with further steel processing and fabrication capability for the renewable energy, defence, and other sectors, creating around 200 direct jobs and 1,000 indirect jobs.
- **Australian metal coating capacity.** The Company is exploring adding a seventh metal coating line at its Erskine Park site in Western Sydney, adding 240,000 tonnes of capacity with an investment of around \$300 million. This additional facility will support increased domestic demand for COLORBOND®, ZINCALUME® and TRUECORE® steels, to deliver long-term growth.
- **Hydrogen Electrolyser** – as part of our Memorandum of Understanding (MoU) with Shell Energy,

BlueScope is also exploring building a pilot Hydrogen Electrolyser at the Port Kembla Steelworks to produce green hydrogen, which can be used for mobility and be injected into the Blast Furnace to partially replace PCI coal, and ultimately potentially be used to manufacture Direct Reduced Iron (DRI). BlueScope has also entered into a MoU with Rio Tinto to explore building a pilot DRI plant at Port Kembla using green hydrogen from the Electrolyser and using Pilbara ores.

These investments will contribute to economic growth and improved living standards in NSW, as well as helping to support local manufacturing (including defence), fabrication, and building & construction businesses.

BlueScope also believes that an ongoing, competitive domestic steel industry is an important national asset.

Transition to net zero emissions by 2050

BlueScope's Port Kembla Steelworks uses the blast furnace (BF) ironmaking process, in which iron ore and coke produced from metallurgical coal are smelted at high temperature to produce virgin iron. Cokemaking and sintering operations support the blast furnace. Iron is further processed into steel via a Basic Oxygen Furnace (BOF), in which scrap steel is added and oxygen is blown in at high velocity. Off-gases from these processes include carbon monoxide and carbon dioxide, a proportion of which are captured and re-used including to generate electricity.

Further processes convert raw steel into slab (slab caster), hot rolled coil (hot strip mill) and cold rolled coil (cold rolling mill). Midstream manufacturing facilities (located in the adjacent Springhill Works) take coil steel and process it to manufacture coated steel products such as ZINCALUME® steel and painted steel products such as COLORBOND® steel. A paint line is also located at Erskine Park (Western Sydney Service Centre). Direct emissions from these midstream facilities are mostly associated with ovens used to finish products.

Steel products will play an essential role in reducing emissions across the economy, including as vital components in renewable energy generation infrastructure, electricity transmission & distribution infrastructure, energy efficient buildings and sustainable transport.

However, the global steel industry is also a source of greenhouse gas emissions, with 7-9 per cent of global greenhouse gas (GHG) emissions attributable to the industry. Around 70 per cent of global iron and steel production is currently via the BF-BOF process, with the balance largely accounted for by electric arc furnace (EAF) production (which in turn relies on scrap steel and virgin iron units originally sourced primarily from Blast Furnace operations).

BlueScope acknowledges the Paris agreement on climate change. The Company has set two mid-term 2030 GHG emissions intensity targets and a 2050 net zero goal. It has also committed to an initial capital allocation of up to \$150 million for climate change projects and initiatives over five years, and an indicative expectation of \$300 – \$400M in capital expenditure to meet our mid-term commitments and make progress on our longer-term abatement journey.

To achieve these targets and goal will require adoption of both existing GHG abatement technologies, as well as breakthrough technologies when they become technically and commercially viable.

We are actively exploring emerging and breakthrough technologies to reduce the GHG emissions intensity of current production processes, including the development of green supply chains. To enable this transition, we are working with others across industry, governments, suppliers, customers and communities, universities and researchers and investors.

The most promising breakthrough technology, which is currently being piloted in Europe, is hydrogen direct reduced iron (DRI). This technology would replace metallurgical coal with green hydrogen, produced via electrolysis using renewable energy, in the ironmaking process. BlueScope has announced a Memorandum of Understanding (MoU) with Shell Energy to build and operate a pilot green hydrogen electrolyser at Port Kembla Steelworks. Subsequent processes, including a Melter and/or EAF, would transform direct reduced iron into steel products. Adoption of such technology would require substantial capital investment, as well as significantly increasing operating costs compared to current iron and steelmaking technologies.

A key technical challenge will be to develop and implement the technology to cost-effectively manufacture

direct reduced iron from the hematite ores that predominate in areas such as the Pilbara. To date, magnetite ores have been more suitable for piloting hydrogen DRI production worldwide due to their higher grade once processed and lower impurities. Using hematite ores in DRI production and melter technology are key focuses of BlueScope's MoU with Rio Tinto.

Adoption of breakthrough technology is therefore dependent on several enablers including the availability of affordable and reliable renewable energy and green hydrogen at scale, the availability of quality raw materials, and appropriate policy settings.

The Importance of Local Metallurgical Coal Supply

Metallurgical coal remains one of a small group of raw materials – along with iron ore and fluxes – that are still essential ingredients in the manufacture of commercial quantities of virgin iron and steel. Ongoing supply of high quality local metallurgical coal from the Southern Coalfield of NSW is a significant contributor to the economic viability of Port Kembla Steelworks. In fact, it is not an exaggeration to say that without access to the coal supply from the Southern Coalfields, the Steelworks would not have been built in the Illawarra region.

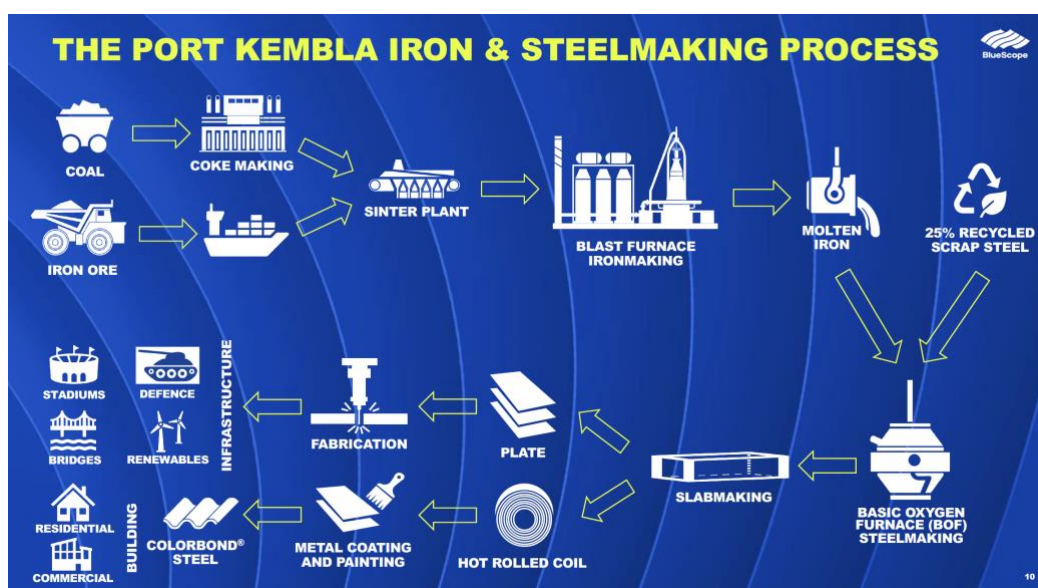
Based on its properties, a coal can be classified by rank, from lowest to highest, with lower rank coals containing less carbon, more moisture and having lower calorific values. In general terms, based on rank, coal can be classified as either thermal coal or metallurgical coal.

Thermal coal is primarily used in power generation or cement manufacture while metallurgical coal is primarily used in the production of coke which is then used in the manufacture of iron and steel.

The different mines across the Southern Coalfield produce different grades of metallurgical coal, of different calorific values, which BlueScope combines to produce the required blend for the operation of the blast furnace to make raw iron. One tonne of coal is not always directly substitutional for some other tonne of coal. The composition of BlueScope's coal blend (primarily comprised of Bulli 1 seam and Wongawilli 3 seam coals) is of critical commercial importance in ensuring that the Port Kembla Steelworks remains globally cost competitive and is therefore commercial-in-confidence.

The diagram below depicts how steel is made at the Port Kembla Steelworks. The pathway from raw materials to finished steel products involves many processes. BlueScope's processes are guided by the BlueScope Australia and New Zealand Manufacturing Quality Policy, which reflects the company's commitment to continual improvement.

Figure 1: Iron and Steelmaking at the Port Kembla Steelworks (Source: BlueScope)



BlueScope is widely recognised as producing some of the world's best quality coke due to its unique location adjacent to the Southern Coalfields; one that makes it logical and economically advantageous to use high

quality coal, which in turn ensures reliable, consistent and efficient production of high-quality coke, which in turn supports optimum Blast Furnace performance and minimum fuel rates.

The Port Kembla Steelworks consumes approximately 3 million tonnes per annum of coal, of which over 80 per cent is sourced from mines in the Illawarra region. The principal Illawarra mine sources currently are South32's (Illawarra Metallurgical Coal) Dendrobium and Appin mines, Peabody's Metropolitan mine, and the SIMEC Tahmoor mine. Approximately 60% of Port Kembla Steelworks' metallurgical coking coal requirements is sourced from South32's Dendrobium and Appin mines. Specific details about BlueScope's coal and other raw materials supply chain is commercial in confidence.

Because of its proximity to the Southern Coalfields, BlueScope has been able to economically optimise its blend of coals while maintaining an output of coke of the required quality. BlueScope is of course continually reviewing and developing our coal blends with our suppliers to ensure that iron and steel making at Port Kembla is not compromised.

The particular characteristics of Wongawilli 3 seam coal which is currently produced by South32 from Area 3 of the Dendrobium mine make it a critical component in BlueScope's current coal blend in order to maintain the production of high-quality coke. BlueScope supports the ongoing extraction of remaining Wongawilli 3 seam coal resources at the Dendrobium mine for as long as this remains viable to enable continued supply of sufficient quantities of Wongawilli 3 seam coal to BlueScope to maintain the current "Illawarra blend". The Project envisages that production at the Dendrobium mine would move predominantly to Bulli 1 seam coal in future when South32 commences mining of Area 5 at the Dendrobium mine. BlueScope would propose to work with South32 to mitigate the impact on Port Kembla Steelworks when this occurs.

In addition to consuming the coke through its iron and steelmaking operations; any surplus coke is sold to export customers. This reflects the need to ensure cokemaking at the Steelworks remains of an economically efficient scale.

Coal is supplied to the Steelworks from the Southern Coalfields in a 'just-in-time' (JIT) arrangement.

This coal is transported to the Steelworks in daily deliveries by truck and rail transport. Local coal supplies are supplemented by smaller volumes of imported coal shipped from other regions to berths at Port Kembla adjacent to the Steelworks. These primary raw materials berths are at a high utilisation level, and any significant increase in seaborne coal imports, should suitable local coal supply no longer be available to BlueScope, would require very substantial capital investment to expand these facilities.

Illawarra Metallurgical Coal operates a coal washery within the Steelworks, with a dedicated conveyor belt system feeding BlueScope's two coal beds. At any one time, one of these beds is being filled with new coal supplies while the other is being run down to feed BlueScope's coke making plant, with these coal beds being built and depleted on a weekly cycle.

There are no facilities at Port Kembla Steelworks to allow BlueScope to stockpile coal sufficient to feed the coal beds, and therefore the operation of the Steelworks is reliant on uninterrupted just-in-time supplies of coal from the Southern Coalfields.

Given the just-in-time nature of supply, and the lack of cost-effective alternative sources of supply, it is very important that BlueScope has access to local coal supply from both the Dendrobium and Appin mines and that is subject to the least possible interruption. For this reason, BlueScope works closely with South32 and its other coal suppliers to understand their extraction plans, including milestones such as longwall changes and maintenance shut-downs. Unexpected variations to licensing conditions for existing longwalls, or restrictions on future extraction plans, have the potential to interrupt coal supply, make mining less viable, and curtail investment in mines. Any of these outcomes would be of concern to BlueScope and other local stakeholders.

BlueScope estimates that replacing local coal supply with coal shipped from interstate (or overseas) would increase steel production costs by between \$50 million and \$100 million per annum, principally because of higher logistics costs associated with importing coal. In any case the cessation of mining of Wongawilli 3 seam coal may require importing larger tonnages of replacement metallurgical coking coal to match the potency of the locally supplied Wongawilli 3 seam coking coal, which is of high quality. As noted above, substantial capital investment would also be required to expand BlueScope's berth facilities and associated infrastructure to enable the import of substantial quantities of coal from interstate (or overseas). BlueScope has commenced work to further progress studies to investigate improving the capacity of the Port Kembla Steelworks' bulk berths to unload the required number of ships per year to enable increased supply of imported coal to replace Wongawilli 3 Seam coal. BlueScope has recently estimated such investment to be in excess of \$100 million.

The Port Kembla Steelworks will continue to rely on competitive sources of locally mined metallurgical coal for the foreseeable future. For the reasons noted above, the continued availability of local sources of coal is very important to ensure that the Port Kembla Steelworks will remain globally cost competitive.

Conclusion

Thank you again for the opportunity to make a submission.

In conclusion, BlueScope supports the Project, as it will help to ensure the ongoing operation and financial sustainability of metallurgical coal mining by South32 and other parties in the Southern Coalfield of NSW. Local and continued supply of metallurgical coal to the Port Kembla Steelworks enables BlueScope to:

- Generate \$6.5 billion in regional economic output (24 per cent of the Illawarra's total economic output), \$1.6 billion of gross regional product (11 per cent of the Illawarra's gross regional product) and \$800 million of household income (13 per cent of total household income in the region).
- Employ 3,500 people directly and 5,400 indirectly in the Illawarra.
- Continue to be a cost competitive manufacturer against foreign steel importers and in steel export markets (including by avoiding the increased logistics costs of importing substantial quantities of metallurgical coal).
- Produce high quality coke, which in turn contributes to the manufacture of high-quality steel products.
- Minimise costly investment in berths, plant and equipment that would be required to import significant volumes of substitutable coal from interstate or overseas.

An ongoing supply of competitively priced local metallurgical coal, including from South32's Illawarra Metallurgical Coal operations, is an essential feedstock for the Port Kembla Steelworks, thereby supporting the jobs, investment, exports and local economic activity generated by the domestic steel supply chain, including meeting the needs of a rapidly expanding renewable energy sector in NSW and Australia.

For further information, or if you have any questions, please do not hesitate to contact BlueScope's Head of Corporate Affairs, Michael Reay on 0437 862 472 or Michael.reay@bluescope.com

Yours sincerely,



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