

## Butcherbird Manganese Project Pre-Feasibility Study Update

Element 25 Limited (E25 or Company) is pleased to provide an update in relation to the Pre-Feasibility Study (PFS) currently being completed in relation to the Company's 100% owned Butcherbird High Purity Manganese Project (Project).

Multiple work stream are progressing, with all key programmes nearing completion. No fatal flaws have been identified and the Company remains of the view that the Butcherbird Project has the potential to drive a long life, low cost high purity manganese production hub producing Electrolytic Manganese Metal (EMM) for the steel industry as well as High Purity Manganese Sulphate Monohydrate (HPMSM) for the lithium ion batteries that will drive the Electric Vehicle (EV) transition.

Importantly, the work to date has identified a number of potential modifications to the flowsheet implementation strategy which are expected to have a positive impact on capital and operating costs and the decision has been taken to undertake this additional work prior to finalising the Pre-Feasibility Study (PFS) in 2020. A more detailed timeline to completion will be provided once the schedule for this optimisation work is finalised.

E25 Managing Director Mr Justin Brown commented, "We are very much looking forward to delivering a successful Pre-Feasibility Study to the market, which will represent a pivotal milestone in our journey to develop the world class Butcherbird Project. Butcherbird is unique in a number of ways which positions the Company to potentially become a long life, low cost producer of sustainable, high quality, low carbon intensity manganese products for traditional and New Energy markets."



## Company Snapshot

ASX Code:	E25	Board of Directors:	
Shares on Issue:	92M	Seamus Cornelius	Chairman
Share Price:	\$0.165	Justin Brown	MD
Market Capitalisation:	\$15.2M	John Ribbons	NED

Element 25 Limited is developing the world class Butcherbird manganese project in Western Australia to produce electrolytic Manganese Metal (EMM) and high purity manganese sulphate (HPMSM) for lithium ion batteries.

The status of key work streams is summarised as follows;

## Mining

Open pit optimisations are complete pending receipt of detailed operating cost estimates. The associated documentation is well advanced and awaiting finalisation for inclusion into the PFS documentation. Given the low stripping ratios, and free dig mining methodology, mining costs are not expected to be a key cost driver for the operation.

## Processing

All PFS metallurgical test work is now complete and final results are being compiled. The work has shown slightly higher recoveries than the Scoping Study test programme, with all other outcomes in line with expectation.

The test programme has successfully yielded a high purity Electrolytic Manganese Metal product grading 99.9% Mn, which exceeds the required purity for commercial sale.



Figure 1: Manganese leaching test equipment.

The work to date has identified a number of priority flowsheet implementation optimisation steps that need to be completed prior to finalising the engineering design. This work will extend the timeframe for the publication of the PFS into 2020, however the potential improvements to both operating and capital costs are potentially significant and therefore the decision has been taken to undertake this work prior to finalising the PFS.

## Marketing

An advanced draft of the manganese market report has been received from Roskill including coverage of both the EMM and battery grade  $\text{MnSO}_4$  market statistics and forecast pricing which will inform the pricing assumptions used in the PFS. The forecasts both in terms of pricing and volumes are in line with assumptions used in the Scoping Study released in 2018.

Offtake discussions are well advanced with a number of potential Japanese, Korean, US and European consumers of EMM. The identity of the potential end users remain confidential however they represent a

number of major steel producers in jurisdictions outside of China. In discussions to date, the Company has received strong indications that demand for non-Chinese production of these high purity manganese products is robust which bodes well for the Company's efforts to lock in bankable offtake arrangements with credible counterparties to underpin project financing discussions.

A visit to Japan, and Korea was undertaken in late October 2019 to continue negotiations which resulted in a number of positive meetings with senior procurement personnel in several steel producers as well as global metals traders. These discussions are ongoing.

## Power Generation

Advisian have completed the PFS level analysis of the recommended power solution for the Project which is expected to comprise a hybrid wind/gas power station contracted over a 20 year PPA term with a total LOM power cost of approximately \$94/MWh. This is a significant improvement on the Scoping Study power cost estimates of approximately \$120/MWh using a gas only base case. The renewable/gas option assumes a flat load profile.

As previously announced, the Company is also working with Murdoch University to explore the potential for a more dynamic operational regime which has the potential to allow for the a higher renewable energy penetration than in the current base case which is expected to utilise approximately 50% renewable energy in tandem with gas fired generation using traditional reciprocating engines.

To support the case for renewable energy as part of the design for the Project, a SODAR and pyranometer have been in continuous operation on site, collecting ten-minute interval wind and solar data. The data collection exercise is expected to continue indefinitely to support PPA negotiations as we progress toward contracting of the power infrastructure.

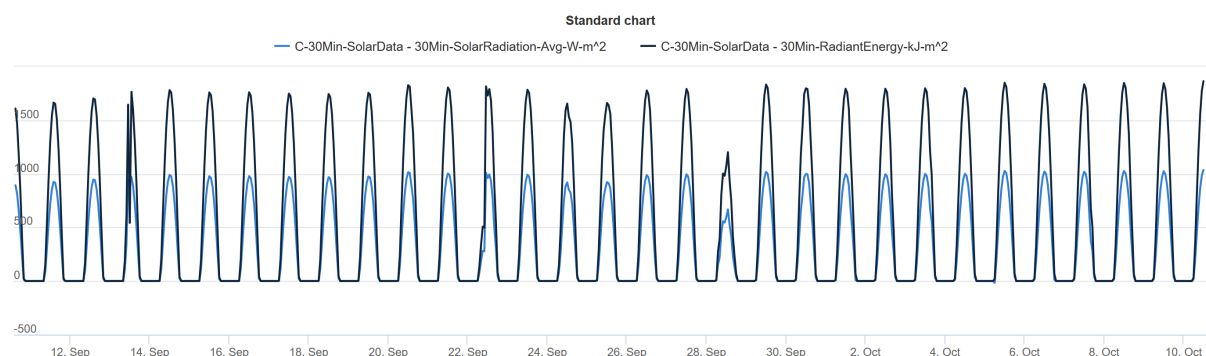


Figure 2: Solar insolation data collected at Butcherbird during September 2019.

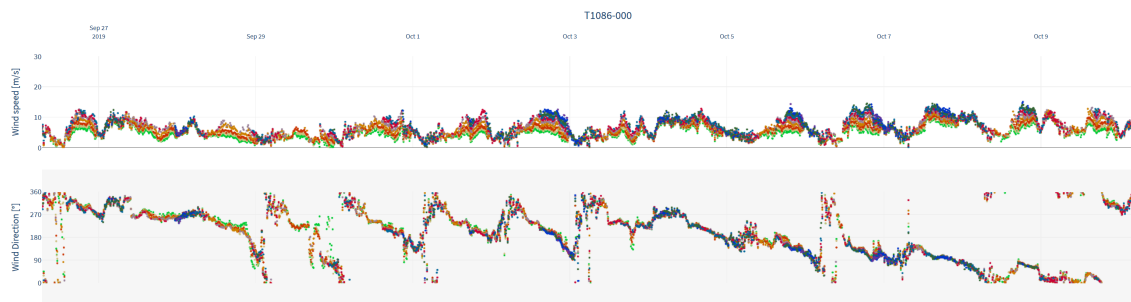


Figure 3: SODAR wind data collected at Butcherbird during September 2019.

## Geology and Mineralisation Report

The PFS documentation for the updated resource statement released on 17 April 2019 is complete and will form the basis of the feasibility study report.

The PFS base case will target a 50 year initial mine life focussing on the Measured and Indicated resource categories (combined total of 57 Mt of ore) to allow the reporting of a maiden reserve statement.

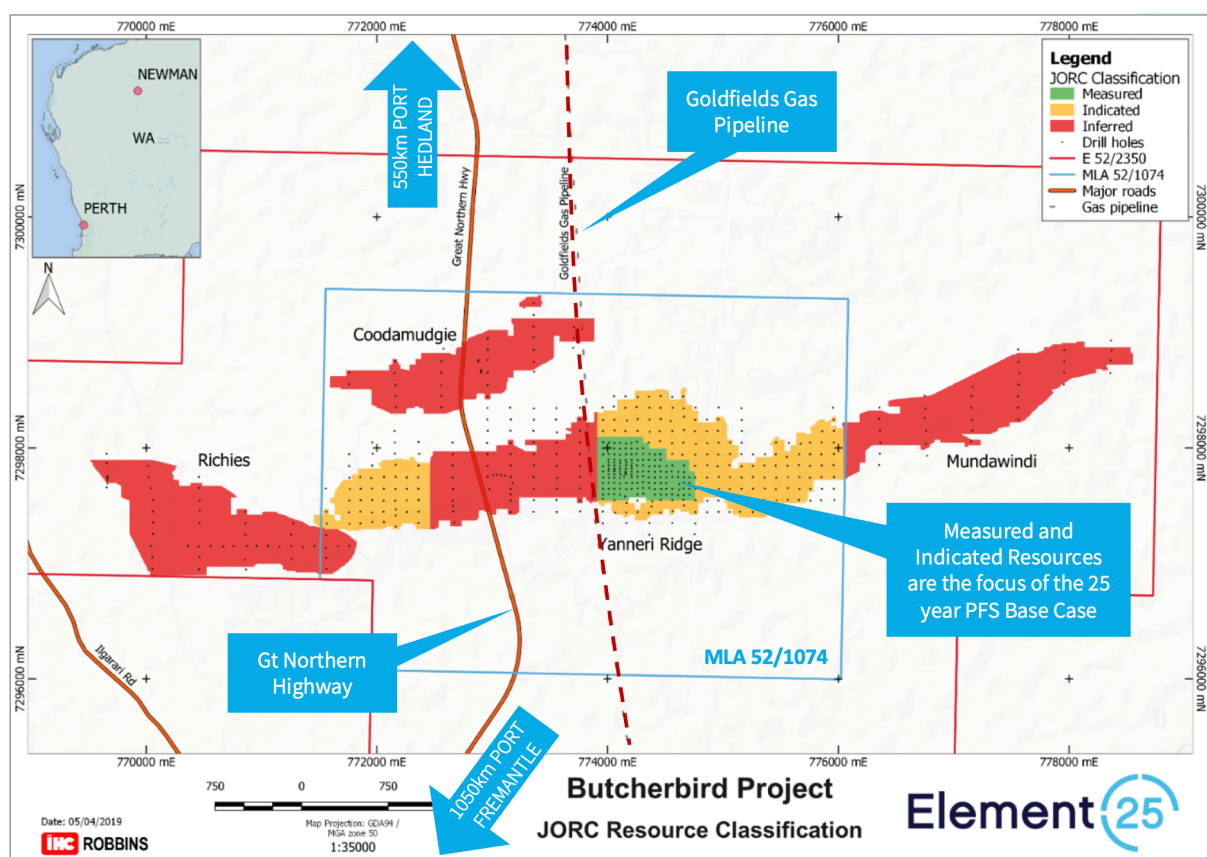


Figure 4: Project plan showing the mining lease application MLA 52/1074 as well as key transport and energy infrastructure and the Yanneri Ridge resource outlines highlighting the measured and indicated zones of mineralisation.

## Access Agreements

As announced on 30 May 2019, the final Native Title Agreement required for the grant of M52/1074 and development of the Butcherbird Manganese Project has been entered into and the Company has mining agreements in place with both the Niyiaparli and Ngarlawanga native title groups.

An access agreement has been agreed with the owners of the Kumarina station. Negotiations with the owners of the Bulloo Downs pastoral lease are ongoing.

## Environment

Final flora & fauna environmental surveys and reports have been completed to a PFS level of detail and have been included in the PFS documentation. Importantly, no Commonwealth EPBC Act or Western Australian *Biodiversity Conservation Act* listed Threatened Flora species have been identified in the project area.

Preliminary Waste characterisation is complete and recommendations for future work will be incorporated into post PFS metallurgical work plans.

## Process Water

A ground magnetic survey has defined an area to the east of planned mining operations which is interpreted as a paleo-drainage system prospective for groundwater. This area will be targeted for a groundwater exploration drilling programme as part of the work programme for 2020.

## Owners Team Strengthened

Mr Neil Graham has joined the Element 25 Team as a full time consultant. Neil is a chartered chemical engineer with more than 30 years of international experience in the chemical and resources industries. His experience in greenfield and brownfield project development, driving operational change and delivering performance turnarounds has been gained in various managing director/general manager roles, across a breadth of organisations and locations. These roles have been European, Asian and Australian based with multi-nationals, such as Huntsman and Orica, and West Australian resources businesses.

## Project Finance

Burnvoir continues to engage with a number of groups in relation to project financing and on 9 October 2019, the Company announced that the Northern Australia Infrastructure Facility (NAIF) determined that it will further investigate the potential to provide debt financing for the Butcherbird Manganese Project.

This decision was taken after E25 provided NAIF with strategic assessment information detailing the benefits that will flow from the Butcherbird Manganese Project and its associated infrastructure to the local communities in the Pilbara region.

This represents one of a number of avenues that the Company is pursuing in relation to securing project finance for the Project.

## Logistics

The logistics solution for the Project comprises road haulage of both inbound reagents and consumables and outbound product. The EMM product will be shipped out of Fremantle Port in the early stages of the Project until suitable infrastructure and container liner services are available at Port Hedland. Contractor pricing has been received for Domestic and Sea freight components and will be included in the final PFS report.

## About the Butcherbird High Purity Manganese Project

The Butcherbird High Purity Manganese Deposit is a world class manganese resource with current JORC resources in excess of 263 Mt of manganese ore. The Company has completed a positive scoping study with respect to developing the deposit to produce high purity manganese sulphate for lithium ion battery cathodes as well as Electrolytic Manganese Metal for use in certain specialty steels. A PFS is currently being completed and is expected to further confirm the commercial potential of the Project.

The Project straddles the Great Northern Highway and the Goldfields Gas Pipeline providing turnkey logistics and energy solutions. The Company is also intending to integrate renewable energy into the power solution to minimise the carbon intensity of the Project as well as further reducing energy costs.

## Mineral Resources

Category	Tonnes (Mt)	Mn (%)	Si (%)	Fe (%)	Al (%)
<b>Measured</b>	16	11.6	20.6	11.7	5.7
<b>Indicated</b>	41	10.0	20.9	11.0	5.8
<b>Inferred</b>	206	9.8	20.8	11.4	5.9
<b>Total</b>	<b>263</b>	<b>10.0</b>	<b>20.8</b>	<b>11.4</b>	<b>5.9</b>

Notes:

- Reported at a 7% Mn cut-off for the Measured and Indicated categories and an 8% Mn cut-off for the Inferred categories.
- All figures rounded to reflect the appropriate level of confidence (apparent differences may occur due to rounding)

Justin Brown

Managing Director

Company information, ASX announcements, investor presentations, corporate videos and other investor material in the Company's projects can be viewed at: <http://www.element25.com.au>.

## Competent Persons Statement

The information in this report that relates to Mineral Resources is based on information announced to the ASX on 17 April 2019. Element 25 confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements, and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.