GLOBAL GEOSCIENCE

Outstanding Results from Rhyolite Ridge Pre-Feasibility

Tuesday, 23 October 2018 – Australian-based lithium-boron developer **Global Geoscience Limited ("Global" or the "Company") (ASX: GSC)** is pleased to announce the outcomes of the Pre-Feasibility Study ("PFS") for the 100%-owned Rhyolite Ridge Lithium-Boron Project ("Project") in Nevada, USA. The PFS was conducted by independent and globally recognized engineering firm Amec Foster Wheeler ("AFW", part of Wood plc).

Highlights

Long Life Project at Bottom of the Cost Curve

- Low-cost lithium producer at US$1,796/tonne of lithium carbonate (with boric acid credit)
- Production from 2021 with >30 year mine life with opportunity to extend and expand
- Producing 20,200 tonnes lithium carbonate and 173,000 tonnes boric acid per year

Low Risk Project

- Diversified earnings from lithium and boron co-products
- Conventional processing using proven technology
- Nevada - first-rate mining jurisdiction
- Conservative start-up approach
- Low operating costs and dual revenue mitigates against cyclical product prices
- Optionality and scalability

Strong Project Economics

- LOM after-tax cashflow of US$6.6 billion
- After-tax NPV (7% real) of US$1.8 billion with IRR of 27.7%
- Annual steady state revenue of US$450 million
- Annual steady sate EBITDA of US$297 million
- Initial capital expenditure of US$426 million including indirect costs and contingency plus $173 million for a lump sum turnkey sulphuric acid plant
- Rapid payback of capital: 4 years

Funding Optionality

- With PFS completed and funding in place through to FID, Company is well positioned to advance discussions with potential market (lithium and boron) and funding partners
- Optionality to fund the sulphuric acid separately to the rest of the operation
- Optionality around scale and initial capex

USA Advantage

- Strategically located proximal to major US and Asian markets
- Limited alternative supply of both lithium and boron in USA

The PFS results affirm the Project's scale, globally competitive forecast cash operating costs, robust operating margins, long life and exceptional economic returns – highlighting its capacity to take full advantage of the current and future expected demand for lithium and boron raw materials over the coming decades.

The Project will be a globally significant producer of both lithium and boron and the largest lithium producer in the United States.

The PFS involved a high-level assessment for throughput options ranging from 1.5 to 3.6 Mtpa and initial capital expenditure of US$421 to US$674 million. Processing throughput is effectively determined by the capacity of the sulphuric acid plant. Two cases were selected for detailed assessment and costing as part of the PFS:

1) 3,500 tonne per day ("tpd") sulfuric acid plant with a nominal processing throughput of 2.7 Mtpa; and
2) 4,500tpd sulphuric acid plant with a nominal processing throughput of 3.6Mtpa.

The 3,500 tpd sulphuric acid plant case was selected as the base case scenario for the PFS.

The Executive Summary from AFW's PFS report forms Appendix 2 to this announcement. Further sections of the PFS report will be made available during November.

Global Geoscience's Managing Director, Bernard Rowe commented:

> "We are delighted by the outcomes of the PFS that clearly show Rhyolite Ridge will be a structurally low cost and very long-life mine supplying two critical materials necessary for urbanization and energy efficiency.
>
> "The boron co-product will generate sufficient revenue to cover nearly all operating costs and thereby enable Rhyolite Ridge to be the lowest cost producer of lithium in the world.
>
> "With approximately A$75 million cash, we are able to undertake the work required to rapidly progress Rhyolite Ridge into production. With the in-depth knowledge provided by the PFS, the Company is well positioned to commence serious discussions with a diverse range of potential market and finance partners.
>
> "Preparations are well underway for the Rhyolite Ridge Definitive Feasibility Study ("DFS") and we expect to be appointing the engineering firm to lead the DFS in the coming weeks.
>
> "Rhyolite Ridge is ideally positioned to become a major, low-cost and long-term supplier of both lithium and boron products to major markets within the USA and Asia.

The PFS is based on an open pit mining operation with the ore being processed by vat acid leaching, evaporation and crystallization to produce boric acid and lithium carbonate. The overall operation is enabled by an on-site 3,500 tpd sulfuric acid plant that will produce acid for leaching, steam for the evaporation and crystallization circuit, and will generate approximately 47 MW of power.

The PFS envisages processing lithium-boron (Searlesite) mineralisation and stockpiling the lithium only (clay) mineralisation. The 79 Mt processed over the life of mine ("LOM") is entirely sourced from the current Indicated Mineral Resource.

The production targets in this announcement are based entirely on the Indicated Mineral Resource summarised on page 7. However, in preparation of the production targets and associated cash flows, each of the modifying factors was considered and therefore demonstrated to be economic.

Key Parameters

The table below summarises the key project parameters over the life-of-mine (“LOM”).

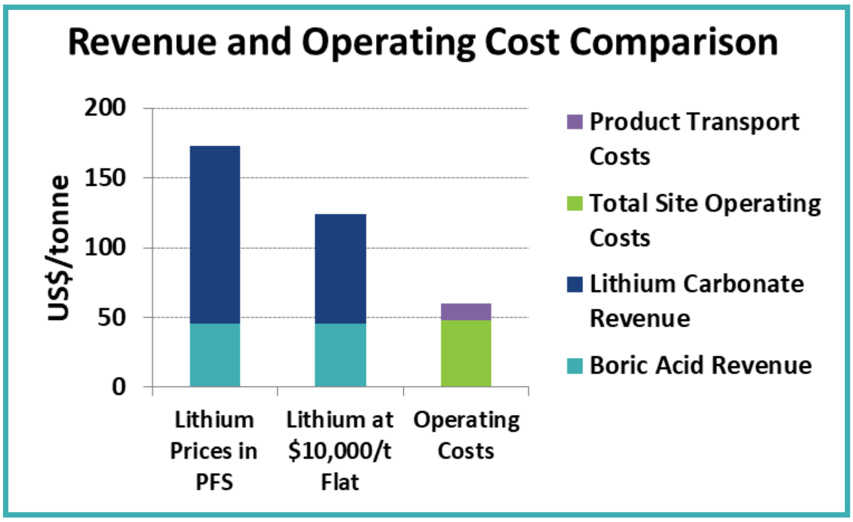
		Average LOM
Physicals		
Ore processing rate	Mtpa	2.6
Total tonnes processed	Mt	79.0
Lithium carbonate grade	%	0.95
Boric acid grade	%	7.81
Recoveries - Lithium	%	81.8
Recoveries – Boron	%	83.5
Lithium carbonate production	tpa	20,200
Boric acid production	tpa	173,000
Operating and Capital Costs		
Lithium carbonate operating cost (net of boric acid credit)	US$/t	1,796
Initial capital expenditure (including contingencies and indirects)	US$M	599.5
Sustaining capital expenditure over LOM	US$M	255.8
Financial Performance		
Annual steady state revenue	US$Mpa	450
Annual steady state EBITDA	US$Mpa	297
Annual steady state after-tax cash flow	US$Mpa	240
Total after-tax cash flow	US$M	6,617
After-tax Net Present Value (NPV) @ 7% real discount rate	US$M	1,820
After-tax Internal Rate of Return (IRR)	%	27.7
Payback period (from start of operations)	years	4.1

Note: The financial analysis used lithium carbonate sale prices ranging from US$12,693/tonne to US$16,862/tonne (CIF China) and a constant boric acid sale price of US$700/tonne (CIF Asia).

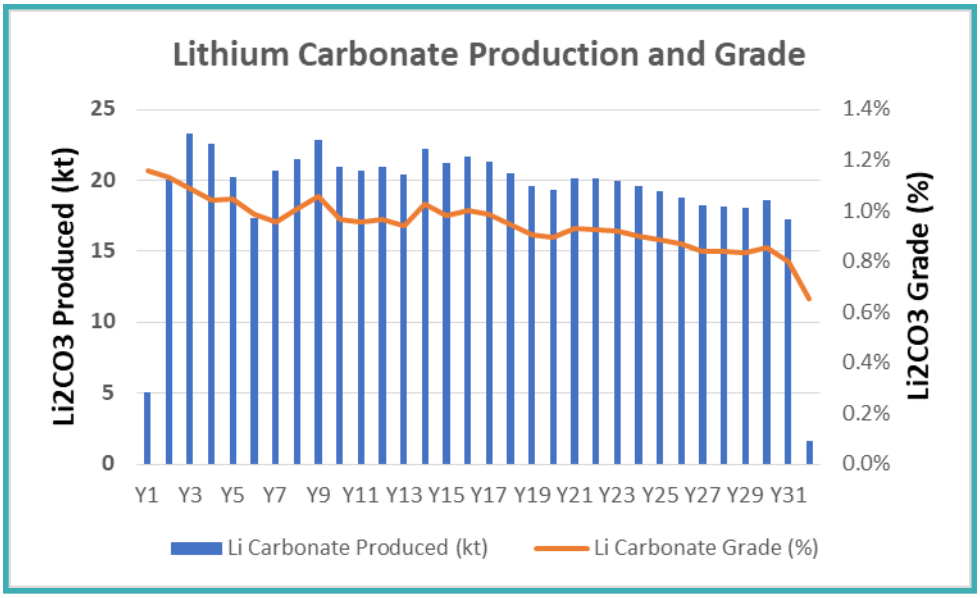
The Project's operating costs (net of boric acid credit) forecast to average US$1,796/tonne of lithium carbonate, which would make Rhyolite Ridge the world's lowest cost producer of lithium.

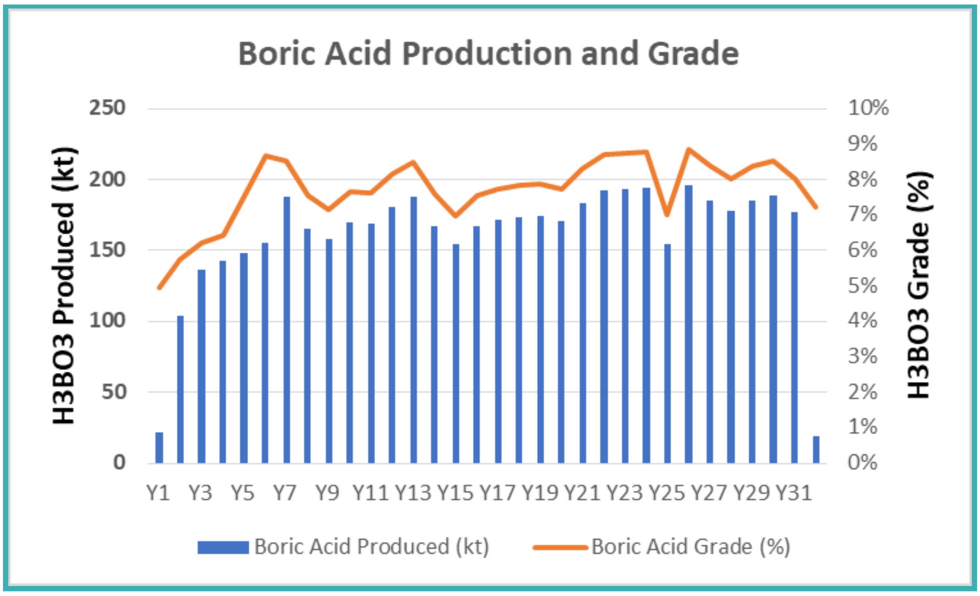
Operating costs are forecast to average US$48/tonne of ore processed over the LOM in the PFS.

The table below compares project revenue and operating costs shown per tonne of ore processed. Revenue is split between lithium carbonate and boric acid. The left column shows the revenue split using the prices used in the PFS while the centre column shows the revenue split using $10,000/t lithium carbonate and $700/t boric acid price. There is a sizeable margin between revenue and operating cost, even at very conservative prices. Also of note is that boric acid revenue approximates total site operating costs.



The charts below set out lithium carbonate and boric acid production and grades on annual basis over the LOM. Lithium carbonate production gradually decreases over the LOM as grades decrease during mining of the lower parts of the deposit. Counter to this, boron grades increase and hence boric acid production rates gradually increase over the LOM.





The Project is forecast to produce 20,200 tpa of lithium carbonate and 173,000 tpa of boric acid. At prices of $10,000/tonne of lithium carbonate and $700/tonne of boric acid used for Project planning, this production equates to 32,300 tonnes of lithium carbonate equivalent ("LCE").

The capital cost estimate of US$599 million equates to a capital intensity of US$18,600/tpa LCE, which is very competitive. Capital intensity for integrated projects (mine to saleable lithium end-product) typically ranges from $15,000 to $25,000/tpa LCE.

A high-level assessment was carried out assessing capital costs for various throughputs. This assessment demonstrated that the plant is scalable based on the acid plant size. It also demonstrates the plant has significant economies of scale. The initial capital costs ranges from $421 million for an operation processing 1.5Mtpa of ore through to $674 million for 3.6Mtpa. At 3.6Mtpa throughput the operation would produce 44ktpa LCE (lithium carbonate plus boric acid).

Nominal Throughput	Mtpa	1.5	2.0	2.7	3.6
Initial Capex incl acid plant	US$M	421	500	**599**	674
Lithium Carbonate	ktpa	11.6	15.5	**20.9**	27.9
Boric Acid	ktpa	98.0	130.0	**176.0**	235.0
Boric Acid (converted to LCE)	ktpa	6.9	9.1	**12.3**	16.4
Total LCE	ktpa	18.5	24.6	**33.2**	44.3
Capital Intensity	US$/tpa LCE	22.8	20.3	**18.0**	15.2

Note: LCE based on prices of US$10,000/tonne for lithium carbonate and US$700/tonne for boric acid. Capital expenditure for 1.5 and 2.0 Mtpa cases are indicative only as they were factored using the PFS capital cost numbers. The production from the 2.7 Mtpa case is based on design parameters (same as for the other cases in the table) and thus slightly different than the base case production detailed in this announcement.

Project Schedule

To expedite the Company's 'time to market' strategy, the operation and associated facilities have been constrained to a maximum surface disturbance of 640 acres or 1 square mile. This allows the project to be considered for permitting under an Environmental Approval Plan ("EA"). Subsequently, a mine plan has been prepared for an initial part of the deposit, referred to as the starter quarry. The project life for the EA plan is forecast to be approximately seven years; however, the mine life is likely to exceed 30 years when removing this constraint and with the necessary permitting approvals.

Primary milestones in the PFS to first production are listed in the table below.

Milestones	Date
Environmental Permits Approved	Q2 2019
Major Contracts Awarded – Acid Plant	Q2 2019
DFS Completion	Q3 2019
Construction Begins	Q3 2019
First Ore Processed	Q3 2021

Mineral Resources

Detailed information on the updated Mineral Resources for Rhyolite Ridge is contained in a separate announcement released today.

The deposit is large, tabular, and moderately dipping. The defined dimensions are approximately 1,400 m x 2,500 m and are comprised of two ore zones approximately 20 m in thickness.

The total Indicated and Inferred Resource for the South Basin at Rhyolite Ridge is estimated to be (at a 1,050ppm lithium cut-off):

- 475.4 million tonnes at 0.9% lithium carbonate and 2.3% boric acid
- Containing 4.1 million tonnes of lithium carbonate and 10.9 million tonnes of boric acid

The high-grade, lithium-boron portion of the Indicated Resource totals:

- 104.1 million tonnes at 0.9% lithium carbonate and 7.2% boric acid
- Containing 0.95 million tonnes of lithium carbonate and 7.5 million tonnes of boric acid

Mineral Resource Estimate (1,050ppm Lithium and 0.5% Boron Cut-off)
Lithium-Boron (Searlesite) Mineralisation

Group	Indicated Mineral Resource								
	Tonnage Mt	Li ppm	B ppm	Li_2CO_3 %	H_3BO_3 %	K_2SO_4 %	Cont. LC kt	Cont. Boric kt	Cont. Pot kt
Upper Zone	71.9	1,840	14,110	1.0	8.1	2.0	700	5,800	1,420
Lower Zone	32.2	1,430	9,750	0.8	5.4	1.7	240	1,730	530
Total	**104.1**	**1,700**	**12,800**	**0.9**	**7.2**	**1.9**	**950**	**7,540**	**1,950**

Group	Inferred Mineral Resource								
	Tonnage Mt	Li ppm	B ppm	Li_2CO_3 %	H_3BO_3 %	K_2SO_4 %	Cont. LC kt	Cont. Boric kt	Cont. Pot kt
Upper Zone	14.7	1,970	12,150	1.0	6.9	2.0	150	1,020	300
Lower Zone	2.6	1,620	6,690	0.9	3.3	1.8	20	90	50
Total	**17.3**	**1,900**	**11,300**	**1.0**	**6.4**	**2.0**	**180**	**1,110**	**340**

Group	Total Mineral Resource								
	Tonnage Mt	Li ppm	B ppm	Li_2CO_3 %	H_3BO_3 %	K_2SO_4 %	Cont. LC kt	Cont. Boric kt	Cont. Pot kt
Upper Zone	86.6	1,860	13,780	1.0	7.9	2.0	860	6,830	1,720
Lower Zone	34.8	1,440	9,520	0.8	5.2	1.7	270	1,820	580
Total	**121.4**	**1,740**	**12,600**	**0.9**	**7.1**	**1.9**	**1,130**	**8,650**	**2,300**

Note: Totals may differ due to rounding, Mineral Resources reported on a dry in-situ basis.

A detailed mining schedule was developed for a constrained starter pit to keep the overall area of disturbance to less than one square mile in relation to qualifying for the EA permitting process. An Ore Reserve relating to the starter pit is close to being finalised.

A sufficiently detailed mining schedule has not been developed for the remainder of the current Indicated Resource to enable conversion to a Probable Ore Reserve. However, the mining schedule was sufficient to enable modelling tonnages and conservative costing of mining the remainder of the current Indicated Resource for financial analysis in the PFS.

Drilling is currently in progress that is aimed at extending the near-surface, high-lithium portion of the current resource to the south. Planned infill drilling is aimed at upgrading most of the current Mineral Resource to the Measured category.

Mining

Mining will be undertaken utilising conventional drill and blast, open-pit truck and shovel methods with hydraulic excavators. To minimize start-up risk, contract mining will be used for the first two years of production. Owner mining is then planned to be undertaken utilising a mine equipment fleet comprising 21 90-tonne haul trucks, two excavators, two drills and associated support equipment. This fleet provides the capability to move more than 33 million tonnes per annum of material.

The tonnages mined and other physicals are detailed on an annual basis are in Appendix 1 to this announcement. Contract mining is planned to be utilized for the first two years and then owner mining.

Processing

The lithium-boron ore will be trucked on internal haul roads to the processing plant 2 km northwest of the quarry. The lower-value lithium-only clay-rich mineralisation will be stockpiled adjacent to the quarry for possible future processing.

Extensive metallurgical testwork on representative samples has supported the development of the PFS processing flowsheet. Laboratories used include Kappes Cassidy & Associates, Hazen, SGS Lakefield, Suez and Kemetco.

The processing plant consists of four main components:

1. Sulphuric acid plant
2. Crushing and vat leaching
3. Boric acid plant
4. Lithium carbonate plant

The sulphuric acid plant is the heart of the process plant, producing sulphuric acid, steam, and electricity to drive the entire process. By combining sulphur prill and water, sulphuric acid will be produced and piped to the leach vats. Heat recovered from the production of the sulphuric acid is used to generate steam that will be piped to the boric acid and lithium carbonate plants to drive the evaporation and crystallisation steps in the process and heat the vats. Steam will ultimately be passed through a steam turbine generator to generate electricity.

The process plant design is based on maximizing the use of the sulfuric acid plant. The ore throughput through the plant is variable to counter the effect of variable ore specific acid consumption to give a constant absolute acid consumption.

The sulfuric acid plant (3,500 t/d) will provide acid for leaching, steam for evaporation and 47 MW of power, which will meet the operation's requirements and allow excess power to be sold.

The ore will be crushed to 25 mm using two-stage mineral sizers and a tertiary cone crusher. The crushed ore will be loaded into a series of large concrete vats by conveyor.

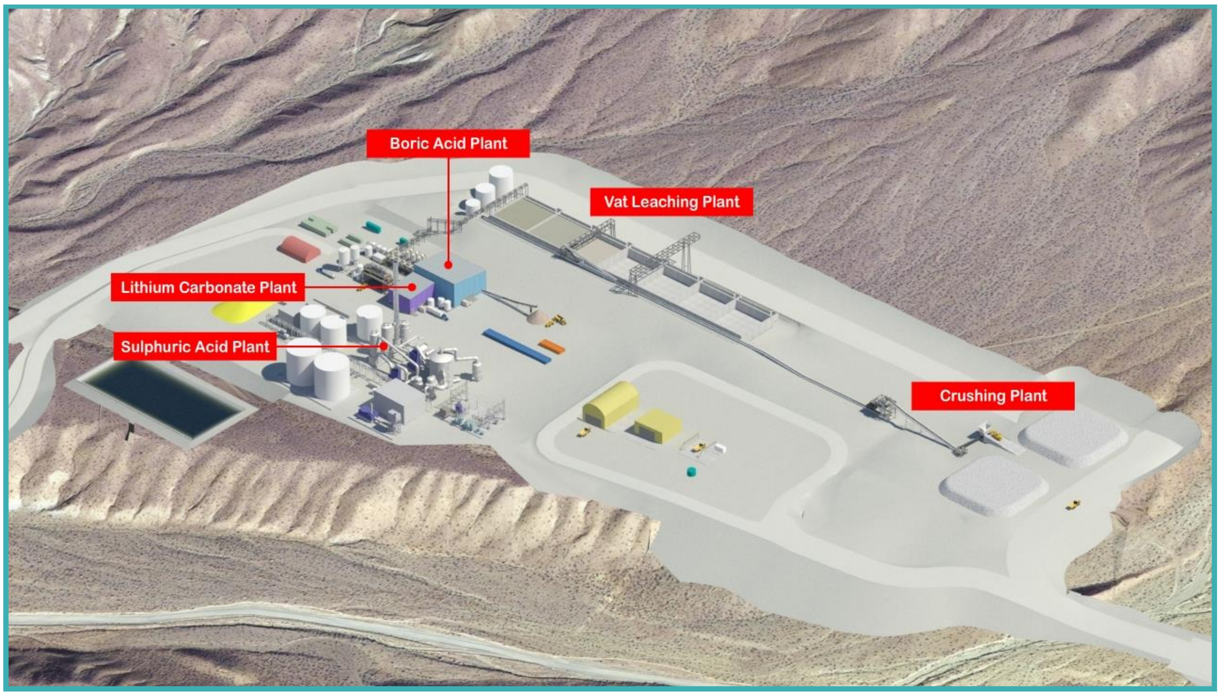
Seven vats (32.5 m wide x 32.5 m long and 7.4 m high) will be used to leach the ore. As the ore is being loaded, the vats will be flooded with an acid-water mix. After four days in the vat, virtually all of the lithium and boron will be leached from the rock into the acid solution. The spent ore is unloaded from the vat with a crane and trucked to a dry-stack storage facility.

The pregnant leach solution ("PLS") will then be piped to the boric acid plant. As a first step, the PLS is cooled and approximately 50% of the boric acid is recovered. This will be followed by an evaporation step to concentrate the PLS followed by a second stage of crystallisation to recover the remaining boric acid and remove other sulphate salts. The remaining boric acid is separated from the sulphate salts by flotation. The combined boric acid will be purified using simple wash, filtration and recrystallisation steps. Boric acid will be packaged into 1 tonne bags or 25 kg bags.

The remaining lithium-rich PLS will then pass to the lithium carbonate plant for further removal of impurities by the addition of lime and sodium carbonate followed by ion exchange. The purified brine will then undergo further evaporation to concentrate the lithium to the point that it can be precipitated through the addition of soda ash.

To minimise start-up risk, the plant will produce technical-grade lithium carbonate for the first three years and then produce battery-grade lithium carbonate.

Overview of the Processing Area



Overall recoveries are estimated to be 81.8% for lithium and 83.5%, for boron.

At the average LOM grades, one tonne of lithium carbonate and 8.4 tonnes of boric acid will be produced from 129 tonnes of ore mined.

Operating Cost Estimates

Operating costs are forecast to average US$47.96/tonne processed over the life of mine.

Summary LOM Operating Costs	US$/t processed
Mining	16.52
Processing - Variable	25.43
Processing and G&A - Fixed	6.01
Total	**47.96**

Mining costs average US$2.07/tonne moved over the life of mine.

Processing costs include operating and maintaining the processing facilities, from the ROM stockpile through to concentrate loadout. Also included is the transport of waste salt and ore residue to the dry-stack storage facility.

In Year 3 of operations, the battery-grade plant expansion is planned. This will cause a marginal increase in power consumption and additional consumption of CO_2 from Year 4 onwards.

In Year 4 of operations, the steam turbine generator is planned to be installed, enabling a net export of power to the grid and an associated reduction in power costs from Year 5 onwards. The turbine is forecast to generate approximately 47 MW of power. As the site uses approximately 9.5MW of power, approximately 37.5MW is forecast to be sold into the grid.

Operating Costs - Processing	Years 1-4		Year 5 onwards	
	US$Mpa	US$/t processed	US$Mpa	US$/t processed
Power	4.1	1.51	-14,444	-5.35
Reagents and Consumables	78.9	29.23	78.9	29.23
Labor	9.1	3.36	9.1	3.36
Mobile Equipment	1.4	0.51	1.4	0.51
Laboratory	1.0	0.37	1.0	0.37
Maintenance Costs	5.0	1.85	5.0	1.85
Battery-Grade Expansion			1.0	0.37
Total	**99.4**	**36.83**	**81.9**	**30.34**

Note: Year 4 has an additional US$1.0 million (US$0.37/t) for the battery-grade plant.

Major design inputs into the processing plant are summarised in the table below

Processing Plant Inputs	ktpa	Cost US$/tonne
Ore feed	2,700	
Sulphur	431	120
Quick lime	66	203
Soda ash	44	300

Other key input costs are:

- Electricity – purchase for $0.0515/kWh, sell for $0.04342/kWh
- Diesel - $2.37/gallon

Capital Cost Estimate

The table below summarises the total estimated cost to design, construct, and commission the Project.

Initial Capital Expenditure	US$M
Site preparation and roads	11.6
Process facilities (excluding 3800 acid plant)	190.4
Sulphuric acid plant	173.3
Dry-stack storage facility	7.1
Utilities	22.3
Ancillary buildings and facilities	16.0
Total Direct Cost	**420.6**
Owner's cost	21.0
Indirect cost	89.9
Total Indirect Costs	**110.9**
Total Direct + Indirect Cost	**531.5**
Contingency	67.9
Total Project Cost	**599.5**

All operating and capital costs are expressed in Q2 2018 US dollars.

The capital expenditure estimate falls under the AACE Class 4 Estimate classification and is expected to be within ±25% of the estimated final project cost, including contingency.

The sulphuric acid plant is planned to be built on a lump sum, turnkey contract basis.

Sustaining capital is estimated to total US$255.8 M over the LOM and the key components are tabulated below.

Sustaining Capital Expenditure	US$M	Timing
Mining fleet	49.2	Year 3
Dry-stack storage facility expansion	40.7	Years 10 & 20
Battery-grade circuit	35.4	Year 3
Plant equipment refurbishment	32.4	Ongoing
Acid plant - steam turbine and heat recovery system	38.6	Year 4
Process mobile equipment replacement	6.5	Ongoing
Acid plant catalyst exchange	4.3	Ongoing
On-going sustaining capital	48.7	Ongoing
Total	**255.8**	

Financial Analysis

An economic analysis of the project was completed using both pre-tax and after-tax discounted cash flow analyses. The economic analysis is focused on a 3,500 tpd acid plant mined within the LOM pit. The annual physicals underlying this financial analysis are in Appendix 1 to this announcement.

For technical work such as estimating cut-off grades and mine planning, constant sale prices of US$10,000/tonne for lithium carbonate and US$700/tonne for boric acid were used.

Lithium carbonate sale prices in the financial model are the average of forecasts provided to the Company by Roskill and Benchmark Mineral Intelligence, as detailed in the table below.

Project Year		1	2	3	4	5	6	7+
Lithium Carbonate Price	US$/t	12,693	12,917	13,633	14,483	14,488	15,540	16,862

The above prices are CIF China for technical-grade lithium carbonate in years 1-3 and then for battery-grade lithium carbonate.

The increasing lithium carbonate prices reflect the likely demand growth for lithium, particularly from 2025 when many market analysts forecast exponential growth for electric vehicle demand.

Boric acid sale prices in the financial model are US$700/tonne (CIF Asia) flat over the life of mine.

The estimated cost of road transport to Los Angeles and sea freight to China are included in the financial model for both lithium carbonate and boric acid, totaling US$156 and US$160 per tonne of product, respectively.

All pricing and costs are in constant Q2 2018 United States dollars.

All cash flows are discounted to the start of project construction, which is assumed to occur over two years from 1 July 2019.

Tax rates assumed in the financial model are:

- Federal corporate tax of 21%
- Nevada net proceeds tax of 5%
- 22% depletion allowance
- 3.02% Esmeralda property tax rate.

The table below summarises the key financial outcomes of the ungeared Base Case.

Ungeared Base Case Outcomes		LOM
Cash Flow Pre-tax		
Undiscounted cumulative cash flow	US$M	8,008.5
NPV @ 5%	US$M	3,121.2
NPV @ 7%	**US$M**	**2,217.3**
NPV @ 10%	US$M	1,359.6
Payback period (from start of operations)	years	4.0
IRR pre-tax	%	29.8%
Cash Flow After-tax		
Undiscounted cumulative cash flow	US$M	6,617.4
NPV @ 5%	US$M	2,571.4
NPV @ 7%	**US$M**	**1,819.7**
NPV @ 10%	US$M	1,104.3
Payback period (from start of operations)	years	4.1
IRR after tax	**%**	**27.7%**

Funding Options

With the PFS completed and funding in place through to the final investment decision ("FID"), the Company is well positioned to advance discussions with potential market (lithium and boron) and funding partners.

Project fundamentals and the PFS outcomes bode well for various attractive funding options to be available to the Company because:

- Robust economics including strong cash flow, fast payback and moderate capital intensity bode well for funding options.
- 100% ownership and revenue from two products
- Nevada location is an attractive jurisdiction
- Both products are critical to emerging clean-energy markets with limited long-term supply in USA - critical metals requiring secure, stable long-term supply.
- Opportunity to fund the sulphuric acid separately to the rest of the operation.

- Scalable with economics that are not very sensitive to capex.

The Company's board and management have deep and relevant experience to drive assessment of funding options.

The Project has the capacity to attract material debt financing and the Company is also exploring other opportunities for the funding required to build the Project, including potential offtake partners or other strategic investors at Project level.

Next Steps

The work program over the coming months includes:

- Appointment of engineering firm for the DFS
- Pilot scale testing of the flowsheet aimed at confirming recovery and design parameters as well as producing samples for potential customers
- Ongoing metallurgical testwork to further optimize the PFS flowsheet
- Drilling to upgrade the Mineral Resource to the measured category and extend high-grade, shallow mineralisation to the south
- Updated Resource/Reserve estimation
- Testwork and trade-off study relating to the Project potentially producing various lithium products, including battery-grade lithium carbonate and lithium hydroxide
- Environmental permitting – complete remaining baseline surveys and start NEPA process
- Advance discussions with potential market and financial partners.

Contacts at Global Geoscience

Bernard Rowe
Managing Director
T: +61 419 447 280
E: browe@globalgeo.com.au

James D. Calaway
Chairman
T: +1 713 818 1457
E: jcalaway@calawayinterests.com

Roger Howe
Investor Relations
T: +61 405 419 139
E: rhowe@globalgeo.com.au

About Global Geoscience

Global Geoscience Limited (ASX:GSC) is an Australian-based lithium-boron mine developer focused on its 100%-owned Rhyolite Ridge Lithium-Boron Project in Nevada, USA.

Rhyolite Ridge is a large, shallow lithium-boron deposit located close to existing infrastructure. It is a unique sedimentary deposit that has many advantages over the brine and pegmatite deposits that currently provide the world's lithium. Rhyolite Ridge is one of only two known large lithium-boron deposits globally.

Global Geoscience is aiming to capitalise on the growing global demand for lithium and boron. Lithium has a wide variety of applications that include glass, ceramics, lubricants and its main growth market, batteries. Boron is used in glass, fiberglass, insulation, ceramics, semiconductors, agriculture and many other applications. Global Geoscience aims to develop the Rhyolite Ridge Lithium-Boron Project into a strategic, long-life, low-cost supplier of lithium and boron products. To learn more please visit: www.globalgeo.com.au.

Compliance Statement

The information in this report that relates to Exploration Results is based on information compiled by Bernard Rowe, a Competent Person who is a Member of the Australian Institute of Geoscientists. Bernard Rowe is a shareholder, employee and Managing Director of Global Geoscience Ltd. Mr Rowe has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Bernard Rowe consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

In respect of Mineral Resources referred to in this report and previously reported by the Company in accordance with JORC Code 2012, the Company confirms that it is not aware of any new information or data that materially affects the information included in the public report titled "Updated Rhyolite Ridge Lithium-Boron Mineral Resource" dated 23 October 2018 and released on ASX. Further information regarding the Mineral Resource estimate can be found in that report. All material assumptions and technical parameters underpinning the estimates in the report continue to apply and have not materially changed.

Forward Looking Statements

Various statements in this report constitute statements relating to intentions, future acts and events which are generally classified as "forward looking statements". These forward looking statements are not guarantees or predictions of future performance and involve known and unknown risks, uncertainties and other important factors (many of which are beyond the Company's control) that could cause those future acts, events and circumstances to differ materially from what is presented or implicitly portrayed in this presentation. Words such as "anticipates", "expects", "intends", "plans", "believes", "seeks", "estimates", "potential" and similar expressions are intended to identify forward-looking statements.

Global cautions security holders and prospective security holders to not place undue reliance on these forward-looking statements, which reflect the view of Global only as of the date of this report. The forward-looking statements made in this report relate only to events as of the date on which the statements are made. Except as required by applicable regulations or by law, Global does not undertake any obligation to publicly update or review any forward-looking statements, whether as a result of new information or future events. Past performance cannot be relied on as a guide to future performance

Lithium and Boron Conversion Factors

Lithium and boron grades are fundamentally presented in parts per million ("ppm") or percentages of each element in a given sample or estimate.

Lithium and boron grades are also expressed as various compounds in percentages in order to facilitate comparisons between different types of deposits and/or various products. The conversion factors presented below are calculated on the atomic weights and number of atoms of each element in the various compounds.

The standard lithium conversion factors are set out in the table below:

Convert from		**Convert to Li (lithium)**	**Convert to Li_2O (lithium oxide)**	**Convert to Li_2CO_3 (lithium carbonate)**
Lithium	Li	1.000	2.152	5.322
Lithium Oxide	Li_2O	0.465	1.000	2.473
Lithium Carbonate	Li_2CO_3	0.188	0.404	1.000

Lithium (chemical symbol: Li) is the lightest of all metals and the third element in the periodic table. The element lithium does not exist by itself in nature but is contained within mineral deposits or salts including brine lakes and sea water.

The lithium carbonate grades reported in the Company's Mineral Resource estimates are calculated using the conversion factors in the table above and assume 100% of the contained lithium is converted to lithium carbonate.

The use of Lithium Carbonate Equivalent ("LCE") is to provide data comparable with various lithium industry reports. LCE is often used to present the amount of contained lithium in a standard manner, i.e. – to convert lithium oxide into lithium carbonate. LCE is also used to convert revenue from other products (e.g. boric acid) produced at lithium operations into the amount of lithium carbonate that would provide revenue equivalent to a tonne of lithium carbonate.

The formula used for the LCE values quoted in this report is:

LCE = (lithium carbonate tonnes produced + [(boric acid tonnes produced * US$700/tonne))/
US$10,000/tonne]

The standard boron conversion factors are set out in the table below:

Convert from		**Convert to B (boron)**	**Convert to B_2O_3 (boric oxide)**	**Convert to H_3BO_3 (boric acid)**
Boron	B	1.000	3.219	5.718
Boric Oxide	B_2O_3	0.311	1.000	1.776
Boric Acid	H_3BO_3	0.175	0.563	1.000

Boron (chemical symbol: B) is a rare light metal and the fifth element in the periodic table. The element boron does not exist by itself in nature. Rather, boron combines with oxygen and other elements to form boric acid, or inorganic salts called borates.

Borates are an important mineral group for modern society with demand expected to continue to grow at or above global GDP rates. There are few substitutes for borates especially in high-end applications and agriculture. These markets are expected to grow as global population grows and becomes more affluent.

Appendix 1 - Rhyolite Ridge Physicals
PFS Base Case - 3,500tpd Acid Plant

		Total	1/07/2021 Y1	1/01/2022 Y2	1/01/2023 Y3	1/01/2024 Y4	1/01/2025 Y5	1/01/2026 Y6	1/01/2027 Y7	1/01/2028 Y8	1/01/2029 Y9	1/01/2030 Y10	1/01/2031 Y11	1/01/2032 Y12	1/01/2033 Y13	1/01/2034 Y14
Production																
Total Tonnes Mined	kt	631,499	15,500	19,900	33,750	33,750	33,750	33,750	33,750	33,750	33,745	33,750	33,750	33,750	33,750	33,750
Waste Tonnes Mined	kt	552,503	14,970	17,730	31,128	31,101	31,387	31,601	31,101	31,138	31,095	31,101	31,101	31,101	31,101	31,103
Ore Tonnes Mined	kt	78,996	530	2,170	2,622	2,649	2,363	2,149	2,649	2,612	2,650	2,649	2,649	2,649	2,649	2,647
Process Tonnes	kt	78,996	530	2,170	2,622	2,649	2,363	2,149	2,649	2,612	2,650	2,649	2,649	2,649	2,649	2,647
Li2CO3 Grade	%	0.95	1.16	1.13	1.09	1.04	1.05	0.99	0.95	1.01	1.06	0.97	0.96	0.97	0.94	1.03
H3BO3 Grade	%	7.81	4.95	5.74	6.22	6.45	7.50	8.67	8.51	7.57	7.14	7.66	7.63	8.17	8.48	7.57
Li2CO3 Contained	kt	748.5	6.1	24.6	28.5	27.6	24.7	21.2	25.3	26.3	28.0	25.6	25.3	25.6	24.9	27.1
H3BO3 Contained	kt	6,172.1	26.3	124.5	163.0	170.7	177.2	186.3	225.5	197.6	189.2	203.0	202.1	216.4	224.7	200.5
Li2CO3 Recovery			81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%
H3BO3 Recovery			83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%
Recovered Li2CO3	**kt**	**612.3**	**5.0**	**20.1**	**23.3**	**22.6**	**20.2**	**17.3**	**20.7**	**21.5**	**22.9**	**20.9**	**20.7**	**20.9**	**20.4**	**22.2**
Recovered H3BO3	**kt**	**5,153.7**	**21.9**	**104.0**	**136.1**	**142.6**	**148.0**	**155.5**	**188.3**	**165.0**	**158.0**	**169.5**	**168.7**	**180.7**	**187.6**	**167.4**

Appendix 1 - Rhyolite Ridge Physicals
PFS Base Case - 3,500tpd Acid Plant

	1/01/2035	1/01/2036	1/01/2037	1/01/2038	1/01/2039	1/01/2040	1/01/2041	1/01/2042	1/01/2043	1/01/2044	1/01/2045	1/01/2046	1/01/2047	1/01/2048	1/01/2049	1/01/2050	1/01/2051	1/01/2052
	Y15	**Y16**	**Y17**	**Y18**	**Y19**	**Y20**	**Y21**	**Y22**	**Y23**	**Y24**	**Y25**	**Y26**	**Y27**	**Y28**	**Y29**	**Y30**	**Y31**	**Y32**
	33,743	12,971	11,990	12,445	13,514	11,421	8,300	7,060	6,826	6,972	12,082	7,031	9,369	11,732	10,020	7,426	7,004	1,199
	31,093	10,321	9,340	9,795	10,864	8,771	5,650	4,410	4,176	4,322	9,432	4,381	6,719	9,082	7,370	4,776	4,354	891
	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	308
	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650	308
	0.98	1.00	0.99	0.95	0.90	0.89	0.93	0.93	0.92	0.90	0.89	0.87	0.84	0.84	0.83	0.86	0.80	0.65
	6.98	7.54	7.75	7.85	7.88	7.72	8.30	8.71	8.75	8.80	7.00	8.86	8.37	8.03	8.38	8.53	8.01	7.24
	26.0	26.5	26.1	25.1	24.0	23.7	24.6	24.6	24.4	23.9	23.5	23.0	22.3	22.2	22.1	22.7	21.1	2.0
	185.1	199.7	205.3	208.1	208.8	204.7	220.0	230.8	231.9	233.1	185.5	234.7	221.7	212.9	222.2	226.0	212.3	22.3
	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%	81.8%
	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%	83.5%
	21.2	**21.7**	**21.4**	**20.6**	**19.6**	**19.4**	**20.1**	**20.1**	**20.0**	**19.6**	**19.2**	**18.8**	**18.2**	**18.2**	**18.0**	**18.6**	**17.3**	**1.6**
	154.5	**166.7**	**171.5**	**173.8**	**174.3**	**170.9**	**183.7**	**192.7**	**193.7**	**194.6**	**154.9**	**196.0**	**185.1**	**177.8**	**185.5**	**188.7**	**177.3**	**18.6**

Appendix 2

Executive Summary of

Rhyolite Ridge Pre-Feasibility Study

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TABLES

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Appendices

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

Paradigm Minerals USA Corp. (PMU), a wholly owned subsidiary of Global Geoscience Limited, is developing the Rhyolite Ridge Mine Project, which is located in Esmeralda County, Nevada, approximately 40 miles southwest of Tonopah and 14 miles northeast of Dyer. The Rhyolite Ridge Project is a globally important hard rock lithium and boron project with a high-grade Lithium/Boron resource of 121.4Mt.

Amec Foster Wheeler was retained in early 2018 to prepare a Prefeasibility Study (PFS) report.

The Rhyolite Ridge Project will consist of the selected “A3500 case described herein, which includes a quarry mining 2.6 Mt/a of ore, and being processed by vat leaching, evaporation and crystallization to produce boric acid and lithium carbonate as more particularly described in this report. The overall operation is enabled by an on-site 3,500 t/d sulfuric acid plant that will produce acid for leaching, steam for the evaporation and crystallization circuit, and generate approximately 47 MW of power.

The proposed project configuration, as defined in this report, is estimated to cost US$599 M. The project will produce approximately 20,200 t/a of lithium carbonate and 173,000 t/a of boric acid over a >30-year period.

The base cost estimate (US$599 M) equates to a capital intensity of US$18,042/t/a LCE (lithium carbonate and boric acid) on an anticipated revenue equivalent basis and will provide a steady state operational cost of US$1,796/t lithium carbonate with credits for boric acid production that is intrinsic to the production of lithium from the mineralogy described herein. Compared to the other lithium producers’ operations, Rhyolite Ridge is anticipated to be the world’s lowest cost producer of lithium carbonate when the boric acid credit is applied.

The Rhyolite Ridge Project generates robust economics, as shown in Table 1-1 and Table 1-2. The after-tax net present value (NPV_7) is US$1,820,000,000.

Table 1-1: Case Financial Statistics without Debt Financing

Financial Statistic	Units	A3500 LOM
Cash Flow Pre-tax		
Undiscounted cumulative cash flow	US$M	8,008.5
NPV @ 5%	US$M	3,121.2
NPV @ 7%	**US$M**	**2,217.3**
NPV @ 10%	US$M	1,359.6
Payback period (from start of operations)	years	4.0
IRR pre-tax	%	29.8%
Benchmark Costs		
Cash Operating Cost with H_3BO_3 Credit	$/t	1,796
After Tax Valuation Indicators		
Undiscounted cumulative cash flow	US$M	6,617.4
NPV @ 5%	US$M	2,571.4
NPV @ 7%	**US$M**	**1,819.7**
NPV @ 10%	US$M	1,104.3
Payback period (from start of operations)	years	4.1
IRR after tax	%	27.7%

Table 1-2 provides a summary of the key financial outcomes for the Rhyolite Ridge Project assuming 60% debt financing of the original capital, a 10-year term, and an 8% interest rate.

Table 1-2: Case Financial Statistics with 60% Debt Financing

Financial Statistic	Units	A3500 LOM
Cash Flow Pre-tax		
Undiscounted cumulative cash flow	US$M	7,781.6
NPV @ 5%	US$M	3,053.3
NPV @ 7%	**US$M**	**2,192.9**
NPV @ 10%	US$M	1,385.8
Payback period (from start of operations)	years	2.9
IRR pre-tax	%	44.2%
After Tax Valuation Indicators		
Undiscounted cumulative cash flow	US$M	6,426.4
NPV @ 5%	US$M	2,528.5
NPV @ 7%	**US$M**	**1,817.2**
NPV @ 10%	US$M	1,148.5
Payback period (from start of operations)	years	3.0
IRR after tax	%	41.8%

A high-level assessment was carried out to evaluate capital costs for various throughputs (Table 1-3) against lithium carbonate production and lithium carbonate equivalent production (incorporating boric credit). The capital costs associated with the additional smaller throughput (2.0 and 1.5 Mt/a) are indicative only, as they were factored using the PFS capital cost numbers. This demonstrated that the plant is scalable based on the acid plant size.

Table 1-3: Capital Cost for Various Throughputs

Nominal Throughput (Mt/a)	Initial Capex (US$M)	Lithium Carbonate (t/a)	Boric Acid (t/a)	Boric Acid LCE (t/a)	Total LCE (t/a)	Capital Intensity (US$/LCE)
3.6	674	27,900	235,000	16,400	44,300	15,214
2.7	599	20,900	176,000	12,300	33,200	18,042
2.0	500	15,500	130,000	9,100	24,600	20,300
1.5	421	11,600	98,000	6,900	18,500	22,800

It also demonstrates the operation has significant economies of scale.

The resource will support larger throughputs; however, the acid plant is the key driver and a 4,500 t/d acid plant is near the largest in operation in the world for the 3.6 Mt/a option. For throughputs beyond 3.6 Mt/a, more than one acid plant would be required which would reduce the economies of scale.

The Rhyolite Ridge Project has the opportunity to be a multigenerational operation, providing lithium and boron.

1.2 Project Development

Amec Foster Wheeler was retained in early 2018 to prepare a prefeasibility study (PFS) report to describe the status of the project; to provide an economic evaluation of the project's potential to justify future expenditures; to identify areas requiring further study; and to plan future work programs. To assist in meeting these objectives, this progress report includes an AACE Class 4 capital cost estimate with an accuracy of ±25%.

1.3 Project Summary

The proposed Rhyolite Ridge Project scope developed during the PFS includes the following:

- A mine equipment fleet with 21 90-tonne haul trucks, two drills, two shovels and associated support equipment and facilities. To minimize start-up risk, contract mining will be used for the first two years of production.

- A material handling system consisting of two-stage mineral sizers and a tertiary cone crusher to reduce material to 25 mm nominal size. Conveyors load the vats with material for leaching.

- Seven leach vats (32.5 m wide x 32.5 m long and 7.5 m high) leach the material. The PLS is pumped for further processing. The spent ore is unloaded from the vat with a crane and trucked to the spent ore facility where it will be dry stacked.

- A facility for containment of the dry stack vat and salt materials.

- Evaporation and crystallization trains will further concentrate the PLS. The salt from this will be co-disposed with the spent ore.

- Boric acid production uses centrifuges and floatation cells to make a final product, which is dried and packaged into 1 tonne bags or 25 kg bags.

- Lithium carbonate uses evaporation, pH modification and IX to make a final product that is dried and packaged into 1 tonne bags. To minimize start-up risk, the plant will produce a technical-grade product for the first three years and then be upgraded to produce a battery-grade product.

- A sulfuric acid plant (3,500 t/d) will provide acid for leaching, steam for evaporation and 47 MW of power, which will meet the operation's requirements and allow excess power to be sold.

- Support infrastructure will be developed.

Site layouts for the project location, overall site layout, process plant area, sulfuric acid plant, crushing and vat leaching, and boric acid, and lithium carbonate process area are shown on the following pages in Figure 1-1, Figure 1-2, Figure 1-3, Figure 1-4, Figure 1-5, Figure 1-6 and Figure 1-7.

Figure 1-1: General Location Plan

Figure 1-2: Overall Site Layout

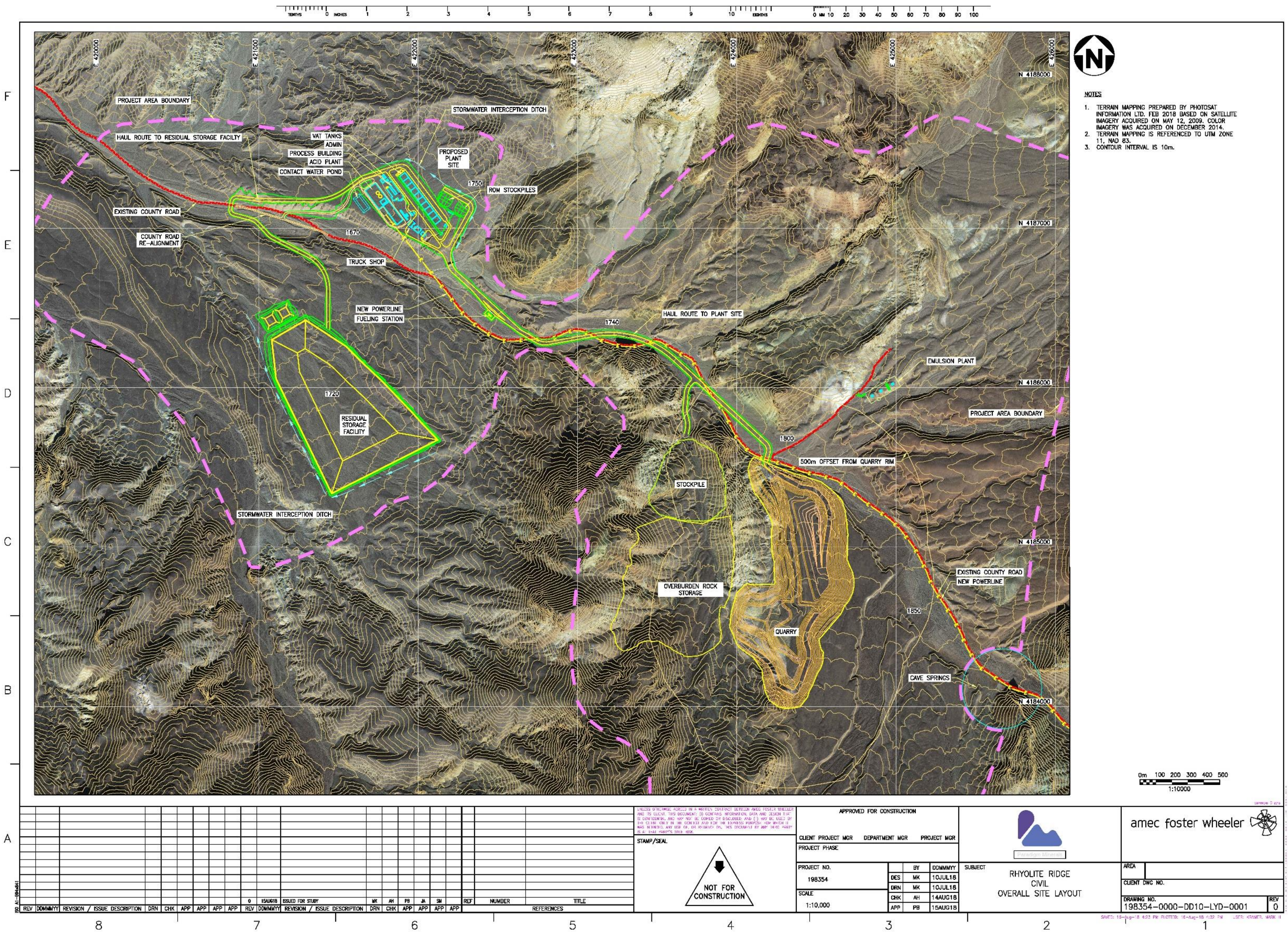


Figure 1-3: Process Plant Site

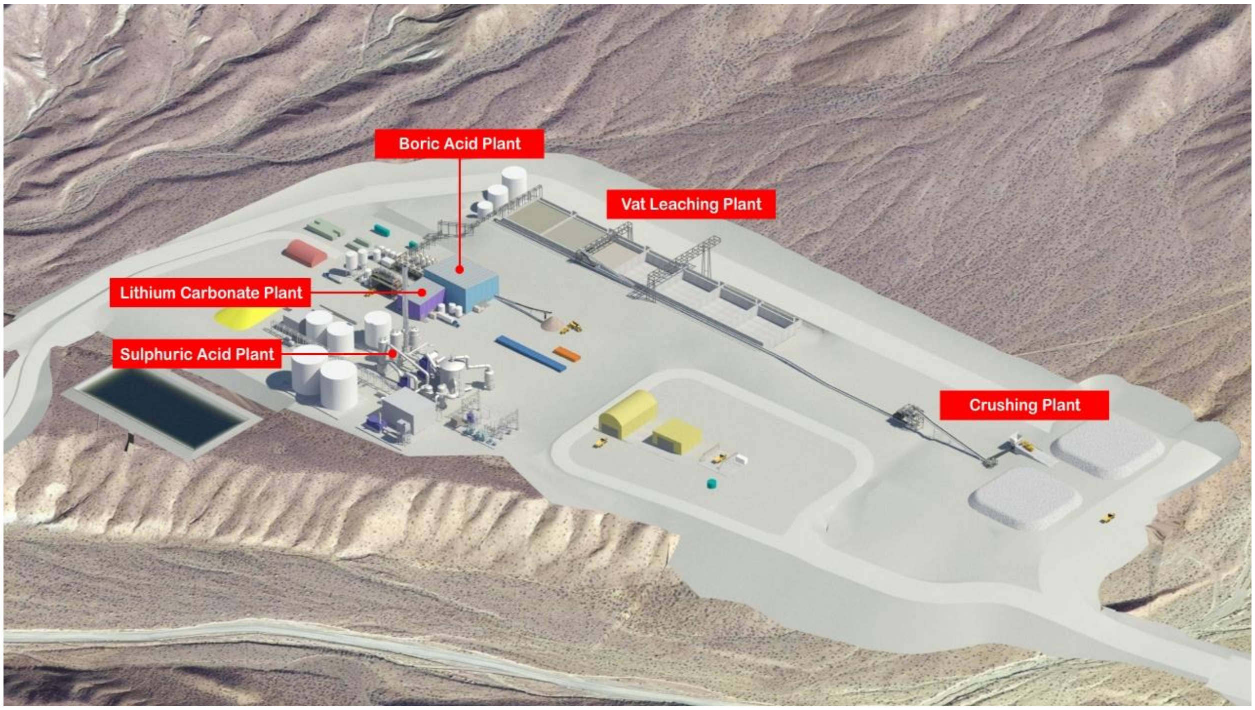


Figure 1-4: Sulphuric Acid Plant

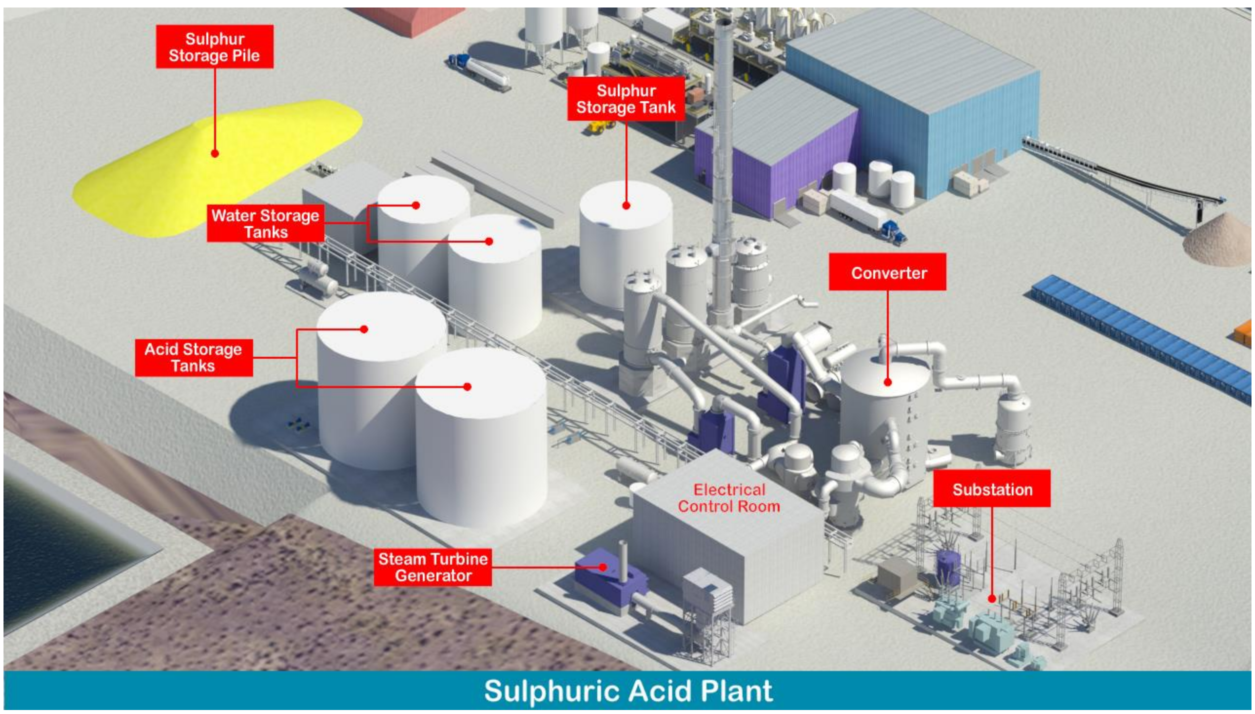


Figure 1-5: Crushing and Vat Leaching Plant

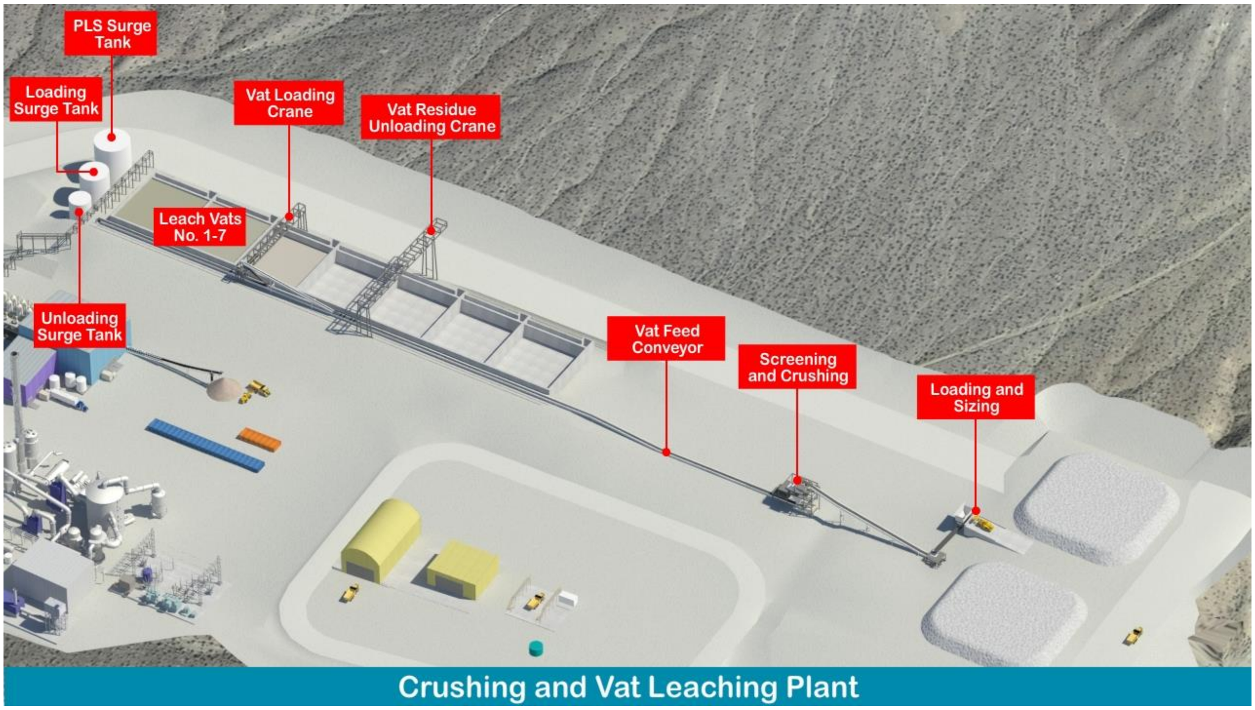


Figure 1-6: Boric Acid Plant

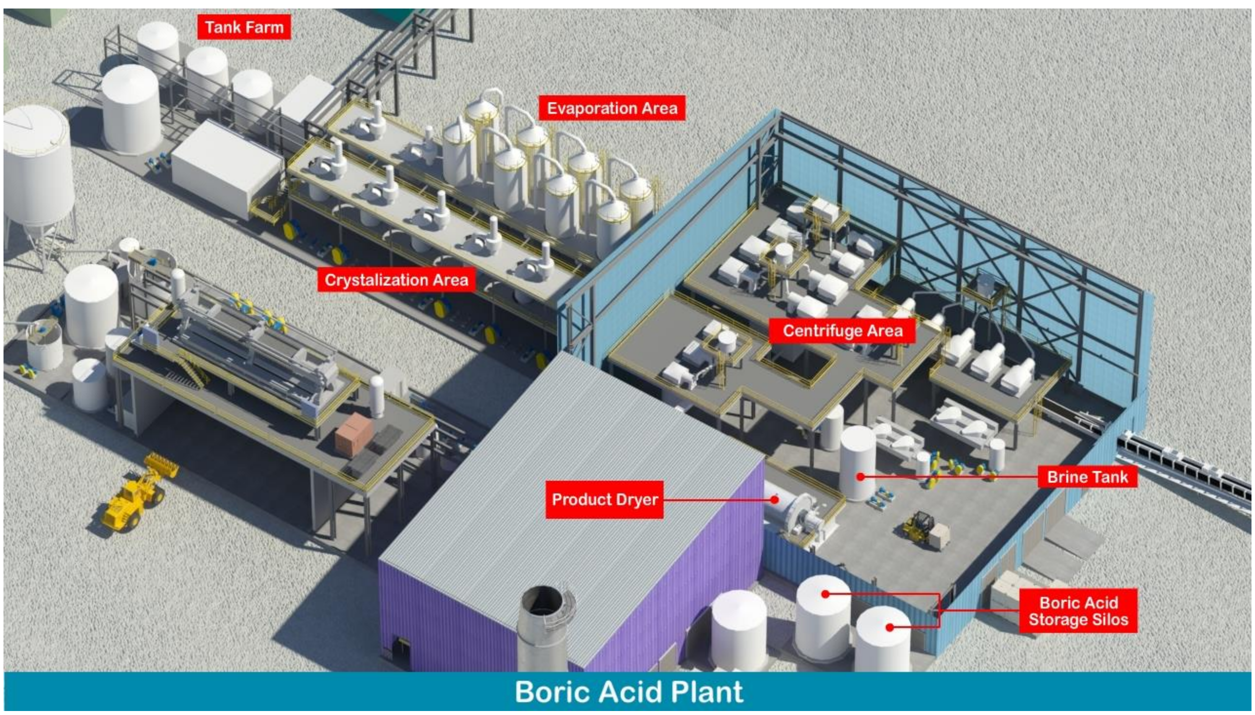
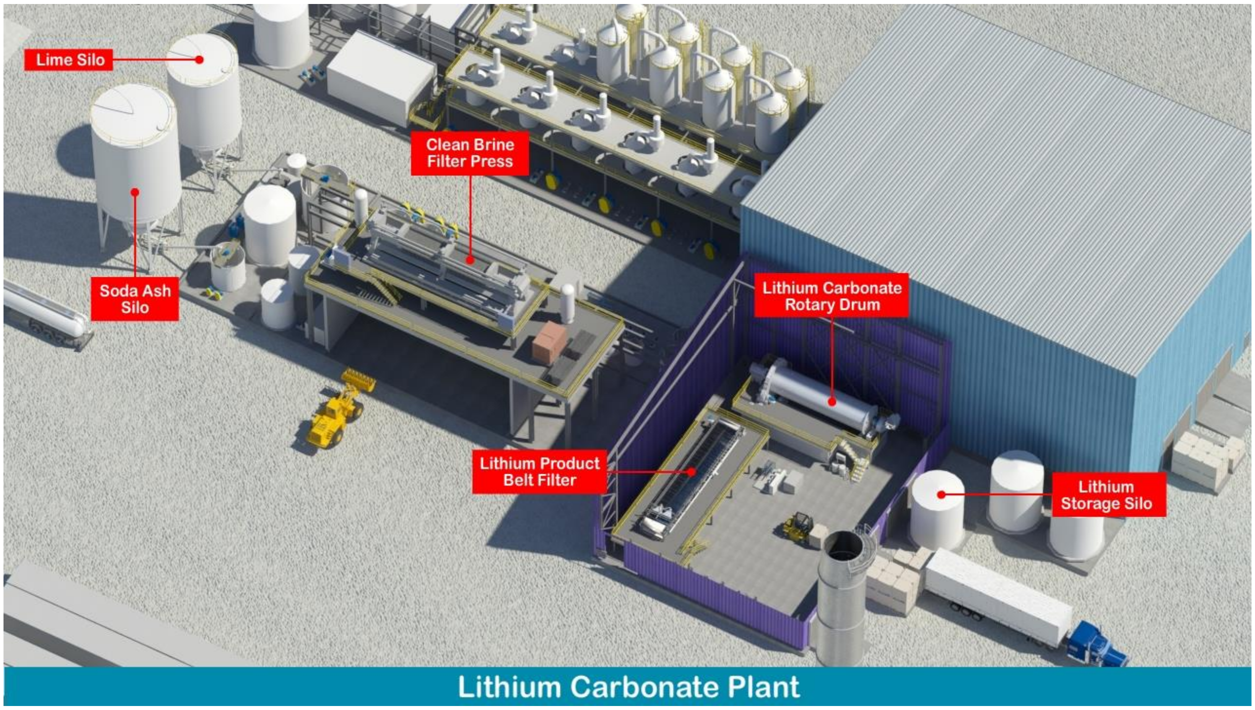


Figure 1-7: Lithium Carbonate Plant



1.4 Geology

The project is located near the western slope of the Silver Peak Range in the Basin and Range region of Esmeralda County, Nevada, USA. The Silver Peak Range hosts a metamorphic core complex consisting of upper Precambrian phyllite, schist and marbles, which are intensely folded. The second major geological feature of the Silver Peak Range is a Tertiary volcanic complex of late Miocene age known as the Silver Peak Caldera, which is represented in this area as the Coyote Hole Group. Lacustrine sediments of the Cave Spring Formation of the Coyote Hole Group host lithium-boron mineralization at the South Basin deposit of Rhyolite Ridge.

The lithium and boron mineralization of the South Basin is interpreted as strata-bound and is almost exclusively restricted to two sequences of finely-bedded marls (20 to 70 m thick), which are partially interrupted by gritstone beds. These deposits are laterally extensive over strike lengths of at least 3 km. Boron is contained in the mineral searlesite ($NaBSi_2O_5(OH)_2$) and lithium is tentatively attributed to lithium fixed in the mineral sepiolite ($Mg_4Si_6O_{15}(OH)_{2.6}H_2O$); however, further work is required to confirm lithium mineralogy.

Mineral Resource Estimate

Drilling within the South Basin deposit extends to a vertical depth of approximately 405 m and the mineralization was modelled from surface to a depth of approximately 400 m below surface. The Mineral Resource estimate is based on good quality trench, reverse-circulation (RC) and diamond drilling (DD) data. Drill hole spacing varies from approximately 200 m x 200 m in the well-defined portions of the deposit to 400 m x 400 m over the remaining areas.

The block model was created and estimated in Surpac using ordinary kriging (OK) grade interpolation. The mineralization was constrained by Mineral Resource outlines based on mineralization envelopes prepared using a nominal 1,000 ppm Li cutoff grade with a minimum downhole length of 3 m. For internal high-grade B zones, a nominal 5,000 ppm B cutoff grade was used.

The block dimensions used in the model were 100 m NS x 50 m EW x 5 m vertical with sub-cells of 6.25 m x 6.25 m x 1.25 m. A total of 137 bulk density measurements using the water immersion technique were taken on core samples collected from diamond holes drilled at the project. Bulk densities ranging between 1.8 t/m^3 and 2.11 t/m^3 were assigned in the block model dependent on mineralization and lithology.

The Mineral Resource was classified as Indicated and Inferred based on data quality, sample spacing, and lode continuity. The Indicated Mineral Resource was defined within areas of close spaced DD and RC drilling of less than 200 m x 200 m, and where the continuity and predictability of the mineralized units was good. The Inferred Mineral Resource was assigned to areas where drill hole spacing was greater than 200 m x 200 m and where the distance from the drill holes was less than 300 m.

The Mineral Resource tonnages and grades were estimated on a dry in-situ basis.

The Mineral Resource RPM has been reported material at a cutoff grade of 1,050 ppm Li and 0.5% B (Table 1-4) and understands this is material rich in searlesite (boron-bearing mineral) and which has more amenable metallurgical characteristics compared to the Li clay dominant material defined by the 1,050 ppm Li cutoff grade only.

RPM recommends further metallurgical testwork be undertaken to further study the amenability of extraction and the value of each of these types of material. RPM compared the modelled grade domains to recent re-logging of the diamond drill holes originally drilled by American Lithium Minerals Inc. and found a high correlation between the geological logging and the modelled grade domains.

Table 1-4: South Basin, Rhyolite Ridge Boron Zone Mineralization, July 2018 Mineral Resource Est. (1,050ppm Li and 0.5% B Cutoff)

Group	Indicated Mineral Resource								
	Tonnage	Li	B	Li_2CO_3	H_3BO_3	K_2SO_4	Cont. LC	Cont. Boric	Cont. Pot
	Mt	ppm	ppm	%	%	%	kt	kt	kt
Upper Zone	71.9	1,840	14,110	1.0	8.1	2.0	700	5,800	1,420
Lower Zone	32.2	1,430	9,750	0.8	5.4	1.7	240	1,730	530
Total	**104.1**	**1,700**	**12,800**	**0.9**	**7.2**	**1.9**	**950**	**7,540**	**1,950**

Group	Inferred Mineral Resource								
	Tonnage	Li	B	Li_2CO_3	H_3BO_3	K_2SO_4	Cont. LC	Cont. Boric	Cont. Pot
	Mt	ppm	ppm	%	%	%	kt	kt	kt
Upper Zone	14.7	1,970	12,150	1.0	6.9	2.0	150	1,020	300
Lower Zone	2.6	1,620	6,690	0.9	3.3	1.8	20	90	50
Total	**17.3**	**1,900**	**11,300**	**1.0**	**6.4**	**2.0**	**180**	**1,110**	**340**

Group	Total Mineral Resource								
	Tonnage	Li	B	Li_2CO_3	H_3BO_3	K_2SO_4	Cont. LC	Cont. Boric	Cont. Pot
	Mt	ppm	ppm	%	%	%	kt	kt	kt
Upper Zone	86.6	1,860	13,780	1.0	7.9	2.0	860	6,830	1,720
Lower Zone	34.8	1,440	9,520	0.8	5.2	1.7	270	1,820	580
Total	**121.4**	**1,740**	**12,600**	**0.9**	**7.1**	**1.9**	**1,130**	**8,650**	**2,300**

Note:

1. *Totals may differ due to rounding, Mineral Resources reported on a dry in-situ basis.*
2. *The Statement of Estimates of Mineral Resources has been compiled by Mr. Robert Dennis who is a full-time employee of RPM and a Member of the AIG and AusIMM. Mr. Dennis has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity that he has undertaken to qualify as a Competent Person as defined in the JORC Code (2012).*
3. *All Mineral Resources figures reported in the table above represent estimates at 11 July 2018. Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.*
4. *Mineral Resources are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The Joint Ore Reserves Committee Code – JORC 2012 Edition).*
5. *Reporting cutoff grade selected based on an RPM cutoff calculator assuming an open pit mining method, a US$10,000/t Li_2CO_3 price, an 80% metallurgical recovery for Li_2CO_3 and costs derived from a high-level technical report supplied by independent processing consultants to Paradigm.*

Opportunities

The deposit is open along strike (particularly to the south and down-dip). Additional shallow material of high grade would enhance the project's economics. Extensional drilling is likely to add tonnage to the Mineral Resource.

The deposit outcrops at surface. Improved resource definition proximal to the surface outcrop of mineralization would improve the level of confidence in the Mineral Resource.

1.5 Mining

The proposed development is an open pit quarry and processing plant in place for the production of lithium carbonate and boric acid. Quarrying will be undertaken by open pit extraction method and with ore directed to a process plant for the production of lithium carbonate and boric acid. To expedite PMU's 'time to market' strategy, the operation and associated facilities have been constrained to a maximum surface disturbance of 640 acres or 1 square mile. To meet this constraint, the quarry plan was optimized to target a surface disturbance of 350 acres. It is referred to as the EA plan (Environmental Approval Plan) within this report. Subsequently, an Ore Reserve and mine plan has been prepared for only the starter quarry.

The project life for the EA plan is forecast to be approximately seven years; however, the life of quarry (LOQ) operation could potentially exceed 30 years when removing this constraint and with the necessary permitting approvals.

An Ore Reserves Statement is being prepared as a separate report to the PFS.

In addition to the A3500 and A4500 scenarios examined in the EA Plan, conceptual planning was undertaken for the life-of-quarry period. The LOQ plans are based on Indicated Resource only and have been undertaken to identify the potential risks that the EA plan of operations may pose to an operation potentially extending beyond the initial planned environmental approvals. The LOQ plans are preliminary in nature and are intended to inform further study on areas requiring further work.

The quarry equipment selected for load and haul are Komatsu PC3000 hydraulic backhoe excavators with HD785 trucks. For the A3500 scenario, quarrying will build up to approximately 20 Mt/a by Year 2 of the project to supply the base case of a nominal 2.7 Mt/a of process feed.

Quarry capital cost, including sustaining costs, are expected to be in the order of US$ 49.2 M. Quarry operating costs are expected to average US$2.17/t of rock over the life of quarry.

1.6 Metallurgical Testing and Flowsheet Development

An extensive metallurgical testwork program has been completed on representative samples at a level sufficient to support the prefeasibility study flowsheet.

The primary metallurgical test programs completed to date and their relevant conclusions are listed below:

- Mineralogy programs completed by SGS Lakefield (SGS) and Hazen Research (Hazen) have identified searlesite as the dominate boron mineral. Lithium mineralization has not been confirmed, but is suspected to be associated with the clay mineral sepiolite. Lithium mineralization has been proven to be non-refractory in the proposed sulfuric acid leach process. Gangue minerals of calcium and magnesium carbonates, sepiolite, and K-feldspar have been identified as the key gangue acid consumers and source of impurities in the pregnant leach solution (PLS).

- Testwork at Hazen and SGS has confirmed that flotation of carbonate minerals to reduce leach acid consumption is technically viable, but flotation has not been adopted in the prefeasibility study flowsheet because of other flowsheet implications (e.g., dewatering equipment cost and wash water requirements). Beneficiation by magnetic separation, gravity separation, size separation, and silicates flotation techniques have yielded poor results.

- Comminution testing has confirmed that the rock is not particularly hard or abrasive and is well suited to crushing in a mineral sizer.

- Agitated tank, heap and vat leaching testwork conducted at Kappes Cassidy & Associates (KCA), Hazen, and SGS has confirmed that high lithium and boron recoveries (≥90%) can be consistently achieved using sulfuric acid leaching at low to moderate temperatures and moderate free acidity levels.

- Agitated tank, heap and vat leaching testwork conducted at KCA and Hazen has confirmed that acid consumption related to free acid can be minimized by utilizing a counter-current leach that is characteristic of vat leaching.

- Heap leaching testwork conducted at KCA and Hazen have indicated that high recoveries can be achieved at coarse and moderate crush sizes and that residence time is limited by bulk acid delivery. Permeability testing has indicated that the heap would remain sufficiently permeable at commercial heap heights, although the range of composites tested for heap leaching were less than those tested for vat leaching. Permeability requirements are generally stricter for heap leaching. The heap leaching flowsheet was not favored over vat leaching due to the lower grade solutions generated for heap leaching.

- Vat leaching testwork conducted at KCA on a range of composite core and outcrop samples has shown the following key conclusions:

- High-lithium (89-97%) and high-boron (84-93%) recoveries have been consistently achieved at a moderate crush size, acidity level, and temperature.

- Residence times ranging from 1.0 to 5.6 days are required to achieve 90% lithium recovery and comparable boron recovery.

- High PLS grades (nearing boric acid saturation limits) and good PLS clarity with low suspended solids content have been consistently achieved.

- PLS neutralization tests confirm that fresh ore could neutralize the majority of free acid and create a PLS with a boric acid grades greater than 8%w/w.

- The physical properties of the vat leach residues are highly variable between samples. The outcrop leach residues and two of the composite core leach residues showed acceptable compacted permeability at compaction heights exceeding the proposed commercial vat conditions. However, two composite core leach residues failed the compacted permeability test. These materials may be unsuitable for vat leaching with the current design and may require blending, design modification or changing the cut-off grade. The evidence suggests that the poor permeability can be predominately explained by the presence of fines introduced from transition zone material between the boron-deficient, high-lithium clay zone, and the moderate boron and lithium upper zone. There is also evidence to suggest that low overall boron content may be a contributing factor to the poor permeability. Further detailed mineralogical characterization and vat leach permeability testwork is required to (a) confirm the root cause of the poor vat permeability; (b) confirm the limits of this deleterious material that can be tolerated in vat leaching at various vat heights; and (c) build a geometallurgical model that reliably predicts vat leaching performance.

• Evaporation and crystallization testwork conducted at Suez Water Technologies & Solutions (Suez), using two cycles of evaporation and crystallization, has confirmed that PLS can be processed to generate a high-grade lithium brine with no precipitation of lithium salts, while achieving significant crystallization of boric acid and major sulfate salts.

• Evaporation and crystallization testwork conducted at Kemetco Research (Kemetco), has indicated that a simplified flowsheet, comprising only one stage of evaporation, is feasible and that high-grade boric acid can be produced in the first stage of crystallization.

• Boric acid flotation testwork conducted at Hazen indicates that mixed boric acid and sulfate salts generated through evaporation and crystallization can be readily separated through conventional boric acid flotation.

- Boric acid recrystallization testwork at Kemetco have confirmed that single-stage recrystallization is sufficient to purify boric acid produced from crystallization to meet the required technical specifications for boric acid.

- Lithium brine cleaning and lithium carbonate precipitation conducted at Kemetco indicate that the feed lithium brine produced from evaporation/crystallization is suitable to be processed through conventional unit operations to produce technical grade lithium carbonate. Final testwork for the battery grade material is dependent on the trade-off study, which will be completed in the feasibility study.

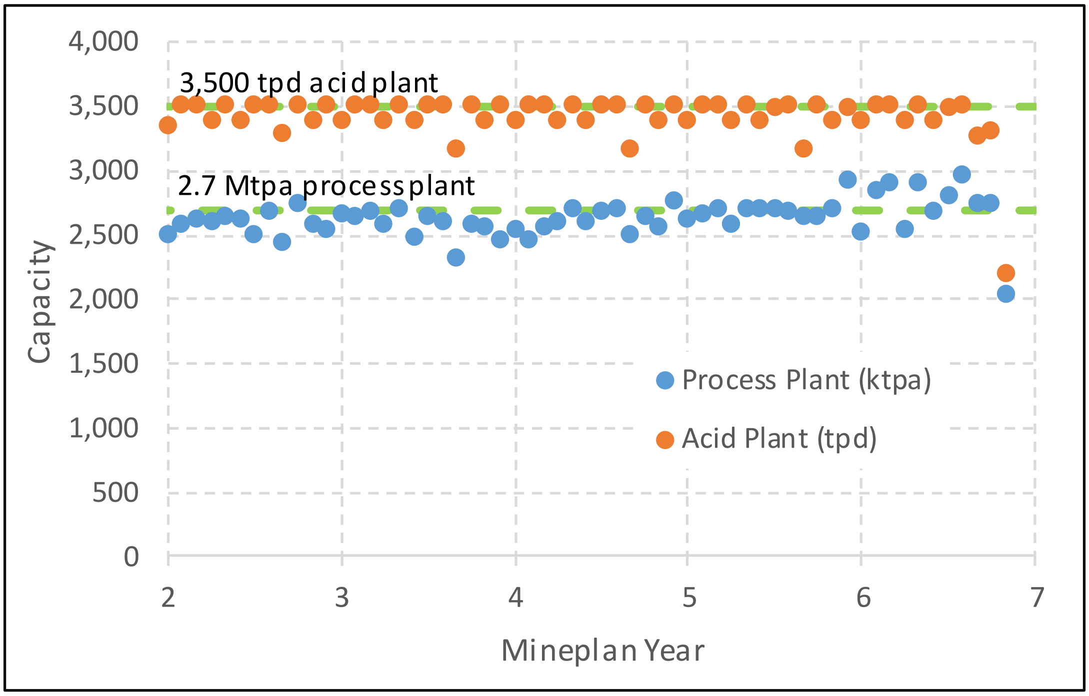
Contrasting permeability characteristics have been observed in vat leach testing between metallurgical samples. Additional testing is required to determine the cause and resolution of the permeability issue. Options for resolution include blending, vat configuration, or modification of cut-off grade.

Further testwork is required to confirm vat leaching behavior, particularly vat permeability, on material that is representative of the lowest quartile of mine plan boron grades.

1.7 Process

The process plant design is based on maximizing the use of the sulfuric acid plant. The ore throughput through the plant is variable to counter the effect of variations in ore specific acid consumption to give a constant absolute acid consumption. The ore throughput of the process plant is based on achieving the maximum ore throughput anticipated in the mine plan on a monthly basis. For clarity, the first two years of operation, when production is ramping up, are not displayed. Plant design capacities are denoted by the horizontal dashed lines. For the A3500 case, higher process plant throughputs in Year 6 have been addressed through subsequent iterations of the mine plan.

Figure 1-8: Acid and Process Plant Capacities for the A3500 Case



Process plant design recoveries and sources of lithium and boron loss are summarized in Table 1-5. Design process water net usage is summarized in Table 1-6. Major design input and outputs to the process plant are summarized in Table 1-7.

Table 1-5: Lithium and Boron Design Recovery and Losses

	Lithium (%)	Boron (%)
Product Recovery	81.8	83.5
Losses	18.2	16.5
Leach Residue - Insoluble	10.0	10.0
Leach Residue - Soluble	2.5	1.7
Sulfate Salts	1.7	2.8
Lithium Brine	N/A	2.0
Bulk Impurity Removal Filter Cake	3.2	N/A
Li Product Loss	0.8	N/A

Table 1-6: Process Plant Net Water Usage

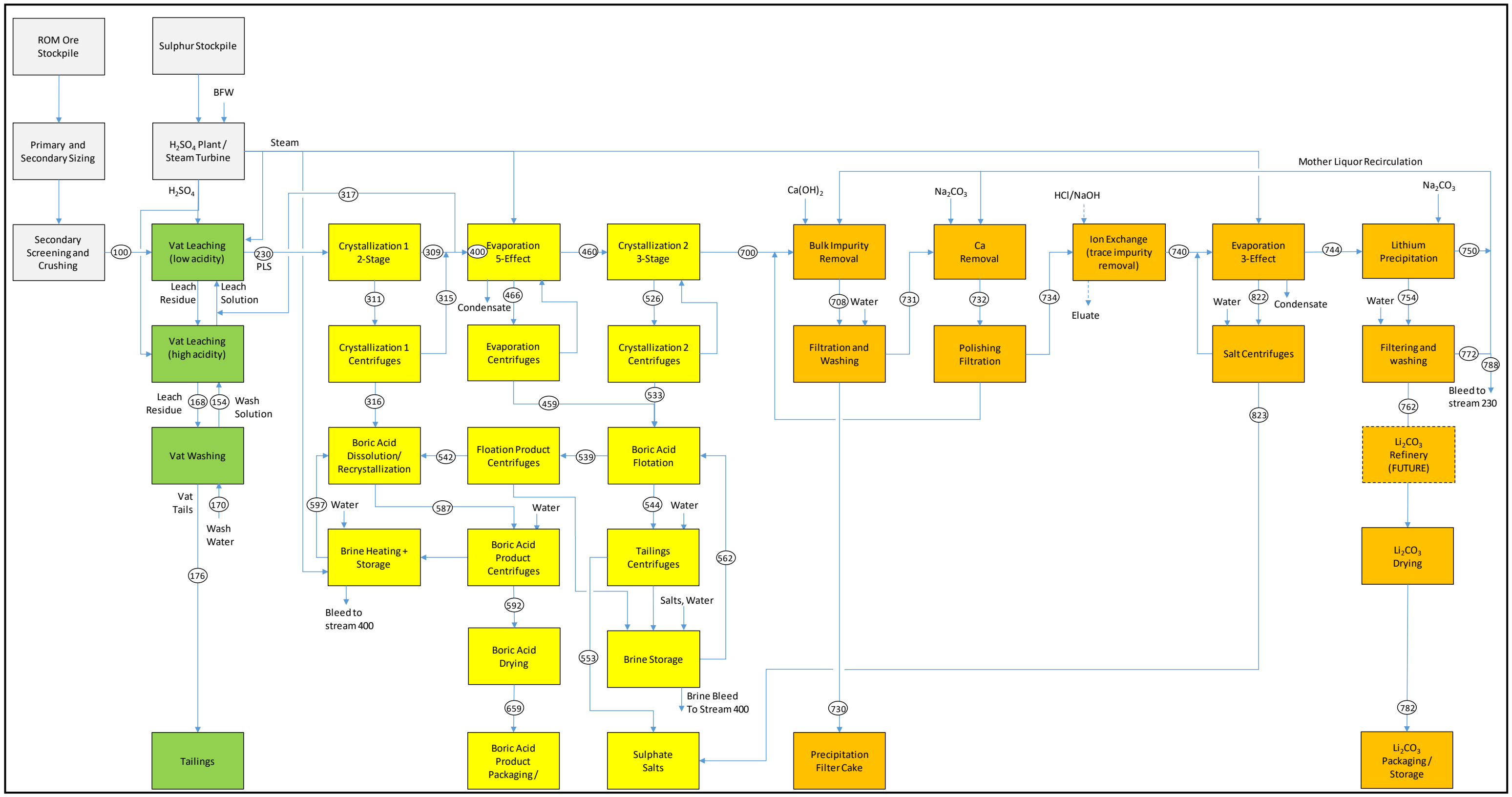
		A3500
Process Plant Net Water Usage	**L/t ore**	**L/s**
Leach Evaporation	216	20
Leach Residue (@30% Moisture)	358	33
Cooling Tower	244	23
Sulfate Salts	155	14
Impurity Cake	76	7
Acid Dilution	65	6
Miscellaneous	109	10
Minor Item Allowance - 5%	61	6
Total	**1,284**	**119**

Table 1-7: Summary of Process Plant Major Design Inputs and Outputs

Design Case	**A3500**
Inputs (kt/a)	
Ore Feed	2,700
Quick Lime	66
Soda Ash	44
Sulfur	431
Outputs (kt/a)	
Boric Acid	220
Lithium Carbonate	25
Vat Residue @30% Moisture	3,393
Sulfate Salts @ 5% Moisture	1,259
Bulk Impurity Filter Cake @ 50% Moisture	372

An overview of the metallurgy and process design is shown in Figure 1-9.

Figure 1-9: Schematic Flow Diagram



The schematic has largely been broken into three subsections, represented here by color coding.

The first section (green) is crushing and leaching, where ROM ore is crushed and leached to produce a pregnant leach solution with boric acid grades approaching saturation point.

The second section (yellow) involves evaporation/crystallization and boric acid generation. This section receives PLS from leaching and, through a series of evaporation and cooling crystallization stages, crystallizes salts of boric acid and metal sulfates. The boric acid is separated and purified from the sulfate salts to produce the boric acid product.

The lithium remains soluble throughout evaporation and crystallization and reports to lithium processing (which is the third section, shown in orange) as a high-grade lithium brine. Lithium processing purifies impurity elements from the brine and precipitates lithium as technical-grade lithium carbonate. A future expansion is planned in plant Year 3 to further refine the technical-grade lithium carbonate to a battery-grade lithium carbonate. The staged progression to battery grade is being done to mitigate risk

1.8 Project Schedule

The project schedule has been developed to ensure rapid production to meet the rapidly increasing lithium demand. Primary milestones for these facilities are listed in Table 1-8.

Table 1-8: Primary Milestones

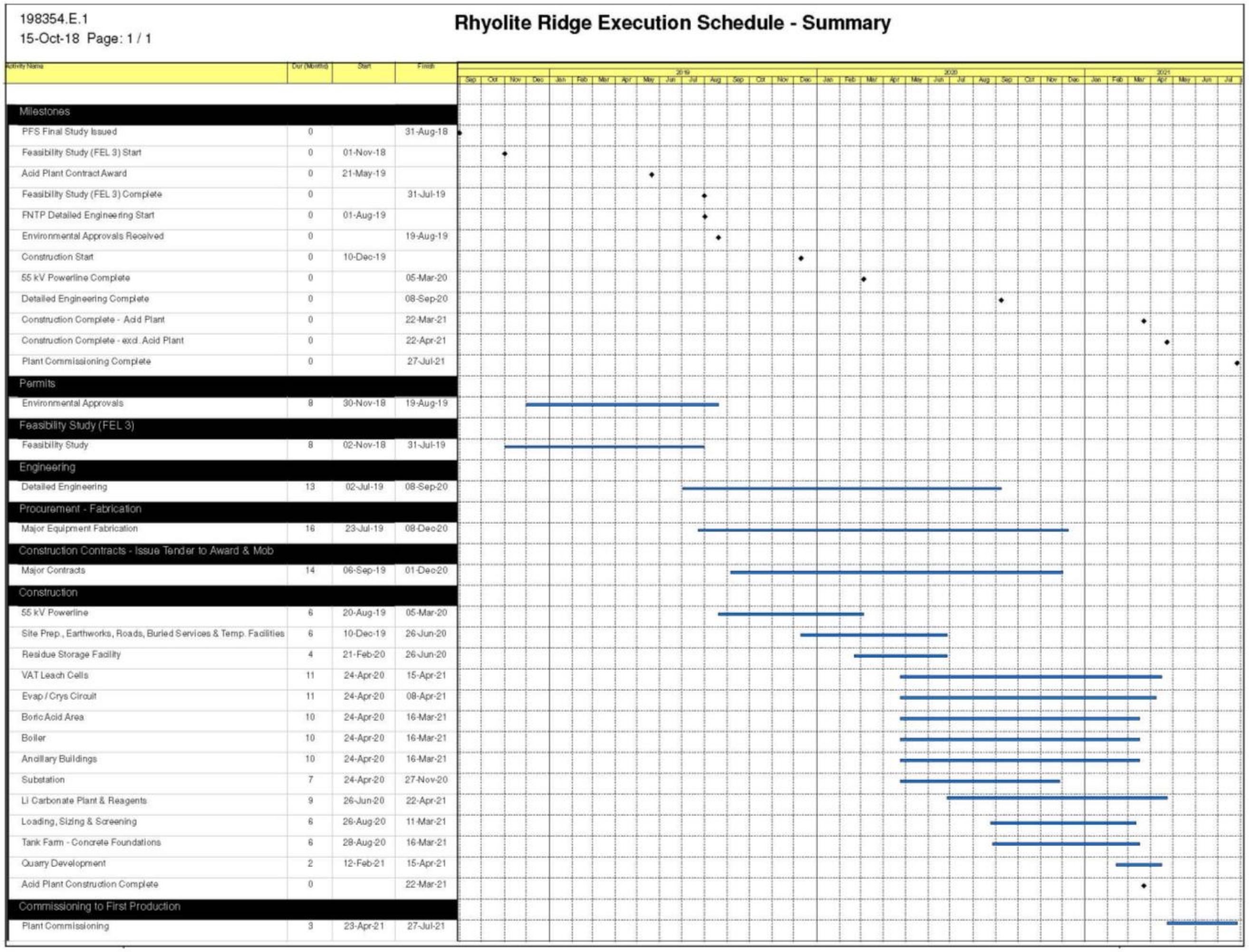
Completion Milestone	Date
Feasibility Study Completion	August 2019
Environmental Permits Approved	Q2 2019
Major Contracts Awarded – Acid Plant	Q2 2019
Construction Begins	Q3 2019
First Ore	Q3 2021

Environmental permitting constrains many of the critical project activities. Key permit milestones required to achieve the planed project schedule include:

- Submit EA: Q1 2019
- Receive Approval: Q2 2019
- Receive Secondary Permits: Q3 2019

Figure 1-10 shows a high-level schedule.

Figure 1-10: High-Level Schedule



Activity Name	Dur (Months)	Start	Finish
Milestones			
PFS Final Study Issued	0		31-Aug-18
Feasibility Study (FEL 3) Start	0	01-Nov-18	
Acid Plant Contract Award	0	21-May-19	
Feasibility Study (FEL 3) Complete	0		31-Jul-19
FNTP Detailed Engineering Start	0	01-Aug-19	
Environmental Approvals Received	0		19-Aug-19
Construction Start	0	10-Dec-19	
55 kV Powerline Complete	0		05-Mar-20
Detailed Engineering Complete	0		08-Sep-20
Construction Complete - Acid Plant	0		22-Mar-21
Construction Complete - excl. Acid Plant	0		22-Apr-21
Plant Commissioning Complete	0		27-Jul-21
Permits			
Environmental Approvals	8	30-Nov-18	19-Aug-19
Feasibility Study (FEL 3)			
Feasibility Study	8	02-Nov-18	31-Jul-19
Engineering			
Detailed Engineering	13	02-Jul-19	08-Sep-20
Procurement - Fabrication			
Major Equipment Fabrication	16	23-Jul-19	08-Dec-20
Construction Contracts - Issue Tender to Award & Mob			
Major Contracts	14	06-Sep-19	01-Dec-20
Construction			
55 kV Powerline	6	20-Aug-19	05-Mar-20
Site Prep., Earthworks, Roads, Buried Services & Temp. Facilities	6	10-Dec-19	26-Jun-20
Residue Storage Facility	4	21-Feb-20	26-Jun-20
VAT Leach Cells	11	24-Apr-20	15-Apr-21
Evap / Crys Circuit	11	24-Apr-20	08-Apr-21
Boric Acid Area	10	24-Apr-20	16-Mar-21
Boiler	10	24-Apr-20	16-Mar-21
Ancillary Buildings	10	24-Apr-20	16-Mar-21
Substation	7	24-Apr-20	27-Nov-20
Li Carbonate Plant & Reagents	9	26-Jun-20	22-Apr-21
Loading, Sizing & Screening	6	26-Aug-20	11-Mar-21
Tank Farm - Concrete Foundations	6	28-Aug-20	16-Mar-21
Quarry Development	2	12-Feb-21	15-Apr-21
Acid Plant Construction Complete	0		22-Mar-21
Commissioning to First Production			
Plant Commissioning	3	23-Apr-21	27-Jul-21

1.9 Project Development and Execution

The execution plan outlines the scope and sequence of events for the engineering, procurement, and construction (EPC) phases of the project, from initiation of preliminary and basic engineering through detailed engineering, site construction, and commissioning and start-up activities. The plan describes the engineering, procurement, project schedule, construction strategy, site access, logistics, and keys to project success. While Safety, Security, Health, and Environment (SSHE) issues are considered at every step of the project, they gain prominence in the field during construction activities.

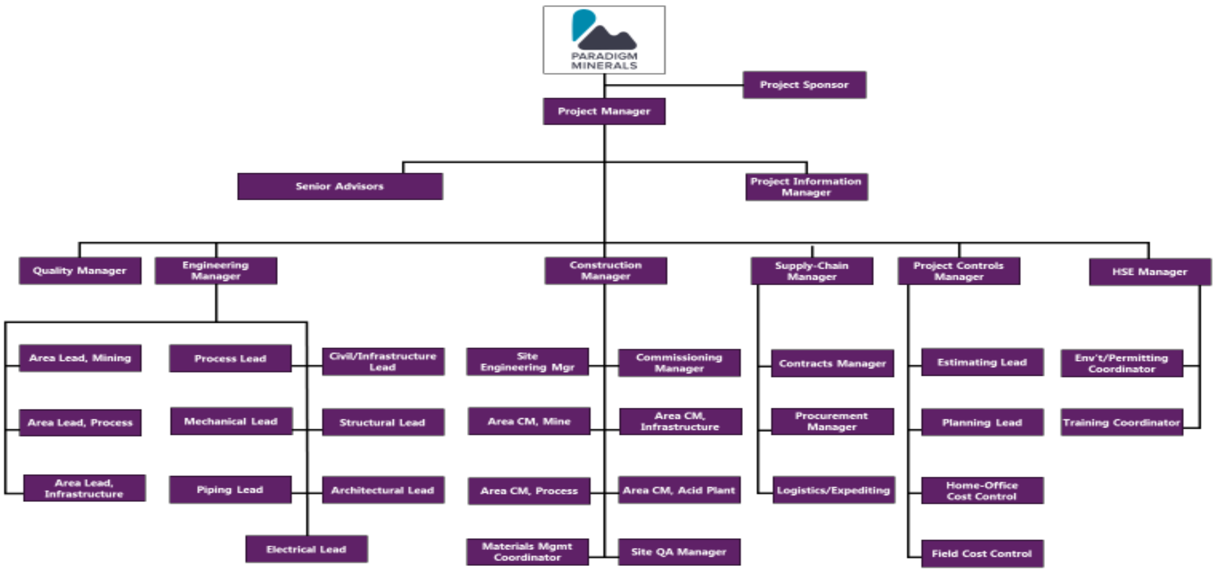
The execution plan is based on the following key assumptions:

- The mine throughput and ore processing methods are variable and are based on a fixed acid plant production rate of 3,500 t/d.
- All excavated plant site material will be suitable for use in the earthworks balance. Material for roads and surfacing will be screened using the process plant material. Clay from the quarry can be used in the residue storage facility (RSF).
- Concrete aggregate (coarse) is available at site but requires crushing. Cement and sand will be transported from off site.
- The RSF or some amount of this area will be developed early for a batching facility, crushing facility, materials management and temporary office facilities.
- Water, sewer, and waste management are all indirect truck haulage scopes. Materials will be hauled on and off site as required by indirect contractors until permanent facilities can be commissioned.
- Pipe racks, conveyor galleries, equipment skids, the administration building and an E-room will be modularized off site and delivered to site for installation.

The project execution schedule has a duration of 25 months from Notice to Proceed in August 2019 through to mechanical completion in August 2021.

An EPCM approach is envisaged for the project. A preliminary organization chart is provided in Figure 1-11.

Figure 1-11: Organizational Chart for Rhyolite Ridge Project EPCM



Execution of the Rhyolite Ridge project will be straightforward. As a greenfield site, there are no existing operational constraints. The starter pit or quarry does not require any pre-stripping, only some minor pioneering work, before mining can commence. The project is located between the major cities of Reno and Las Vegas, both of which can provide the services, and the necessary external infrastructure is already in place. Road access is good, main highways are nearby, and an existing gravel county road runs through the site. Rail transport is also available, if required, although it is not as close as the existing road facilities. In addition, a powerline runs near the site that only needs to be upgraded to meet the project power requirements. Discussions with NV Energy about the power system have commenced.

Weather impacts should be manageable with minimal average rainfall. There are some storms; however, these should require minimal rectification work. Snowfall does occur in winter, but is not heavy and only lasts for a few days. Summers are hot, which will require consideration. Wind is not a major impact.

There is no plan at present to develop a camp on site. It is understood that the workforce in this area consists of travelers who prefer to be paid a sub-rate and live in a nearby campground. Based on this, an RV park can be set up in Dyer or another nearby town. This offsite campsite would require some development and perhaps some leasing arrangements. A hardstand in Dyer that is used for crops would be a good facility for both an RV park and an offsite erection facility and staging area. There is limited parking available at the site. Regardless of where the workforce is lodged, they will marshal at a single location and be bussed to site by the contractors on a regular schedule.

Some exploration activities are already underway, and more will be required as the design work progresses. There is no plan to develop any early facilities prior to "Notice to Proceed." However, it is assumed that the overland powerline and fiber optic cabling for communication will be in place in time for construction.

A peak workforce of approximately 500 people, including both construction and operational personnel, is anticipated during construction. Early recruitment will be required to hire qualified workers for mining and operations and to establish various training programs. Some of these programs will be designed to attract the residents of local communities to enable them to develop the skills needed to participate in this project and subsequent operations.

The health and safety of people and protection of the environment are imperative and integral to all aspects of project execution. All safety policies and procedures will be rigorously observed.

Regulatory approval for initiating work in the field is expected in August 2019. To meet the commissioning target date, it is recommended that basic engineering and long-lead procurement start in November 2018. Approval to proceed with detailed engineering and EPCM activities would be granted in August 2019.

The main scope of work for basic engineering involves critical equipment and defining major equipment and facilities with long-lead procurement cycles. The procurement plan will prioritize these packages based on delivery durations and the construction schedule. A list of the equipment that falls into this category is provided in Table 1-9.

Table 1-9: Long-Lead Equipment and Packages

Item	Delivery (weeks)
Acid plant (EPC)	96
Evaporation/crystallization package	52
Filter press	52
Lime system	44
Electrical rooms	40
Switchgear	37
Transformers	36
Soda ash system	34
Sizers	28
Screens	28

1.10 Environmental Permitting

The project is located on public lands administered by the BLM in Sections 19 through 23, and 26 through 35, Township 1 South, Range 37 East (T1S, R37E), and Sections 2, 3, and 4, T2S, R37E, Mount Diablo Base and Meridian (Project Area).

In general, the proposed mine operations will consist of a quarry and rock storage area and ore processing using a vat leaching method.

The review and approval process for the plan by the BLM constitutes a federal action under the *National Environmental Policy Act* (NEPA) and BLM regulations. Thus, for the BLM to process the plan the BLM is required to comply with NEPA and prepare either an Environmental Assessment (EA), or an Environmental Impact Statement (EIS).

The Department of Interior (DOI) issued an order (Secretarial Order 3355) on August 31, 2017. This order directed the bureaus under DOI to implement page and time limits on EISs. The order set a one-year time limit. Subsequently, DOI issued directives on 27 April 2018 and 6 August 2018 that provide additional guidance. The BLM in Nevada is implementing a new permitting and NEPA process to further address the requirements of the order and directives. The process commences with the submittal of a brief project description and map and then a meeting to discuss the scope of necessary baseline data collection. Following the completion of the baseline reports, the BLM reviews and approves them. The Plan Application is then completed and submitted to the BLM for review. The BLM reviews the Plan Application to determine that it is complete. The BLM decides whether an EA or EIS will need to be prepared to comply with NEPA. Prior to initiating the EA or EIS, the NEPA contractor will prepare a Resource Report, which will evaluate the potential effect of the project on each resource. Each Resource Report is reviewed and approved by the BLM. The NEPA Contractor uses the Resource Reports to complete the NEPA document.

Table 1.10 provides additional information on the principal permits needed to develop each phase of the project and the NEPA process, as well as the status relative to each permit process.

Table 1-10: Principal Permits

Notification/Permit	Agency	Timeframe	Comments
Plan of Operations	Bureau of Land Management	Dependent on NEPA	
Nevada Reclamation Permit	Nevada Bureau of Mining Regulation and Reclamation	Four Month	
Water Pollution Control Permit	Nevada Bureau of Mining Regulation and Reclamation	Eight Months	

Notification/Permit	Agency	Timeframe	Comments
Air Quality Operating Permit	Nevada Bureau of Air Pollution Control	Three months	
Industrial Artificial Pond Permit	Nevada Department of Wildlife	Three weeks	
Water Rights	Nevada Division of Water Resources		
Mine Registry	Nevada Division of Minerals	30 days after mine operations begin	
Mine Opening Notification	State Inspector of Mines	Before mine operations begin	
Solid Waste Landfill	Nevada Bureau of Waste Management	180 days prior to landfill operations	
Hazardous Waste Management Permit	Nevada Bureau of Waste Management	Prior to the management or recycling of hazardous waste	
General Storm Water Permit	Nevada Bureau of Water Pollution Control	Prior to construction activities	
Hazardous Materials Permit	State Fire Marshall	30 days after the start of operations	
Fire and Life Safety	State Fire Marshall	Prior to construction	
Explosives Permit	Bureau of Alcohol, Tobacco, and Firearms	Prior to purchasing explosives	Mining contractor may be responsible for permit
Mine Identification Number	Mine Safety and Health Administration	Prior to start-up	
Notification of Commencement of Operation	Mine Safety and Health Administration	Prior to start-up	
Radio License	Federal Communications Commission	Prior to radio use	

1.11 Capital Cost Estimate

The total estimated cost to design, construct, and commission the A3500 case is shown in Table 1-11 and illustrated in Figure 1-12. A breakdown of direct costs is illustrated in Figure 1-13. The estimated cash flow is shown in Figure 1-14.

Unless otherwise indicated, all costs in this section are expressed in Q2 2018 US dollars without allowance for escalation, taxes, duties, tariffs, costs of further studies and project advancement costs, financing costs, project development and approval costs, working capital, incoming power line, mining equipment (contract mining), currency fluctuation or interest during construction.

The estimate covers:

- the direct field costs of executing the project from detailed design
- indirect costs associated with the design, construction, and commissioning of the new facilities
- Owner's costs
- contingency.

Table 1-11: Capital Cost Estimate

Area	Description	A3500 $M
1000	Mine (excluding Owner equipment – contractor mining) haul roads only	5,896
2000	Site preparation and roads	5,660
3000	Process facilities (excluding 3800 acid plant)	190,366
3800	Sulfuric acid plant (broken out)	173,283
4000	Tailings/waste management	7,065
5000	Utilities	22,286
6000	Ancillary buildings and facilities	16,022
7000	Off-site facilities	(not included)
	Total Direct Cost	420,578
8000	Owner's cost	21,029
9000	Indirects	89,935
	Total Indirect Cost	110,964
	Total Direct + Indirect Cost	531,542
P100	Contingency	67,909
	Total Project Cost	599,542

Figure 1-12: Capital Cost Breakdown

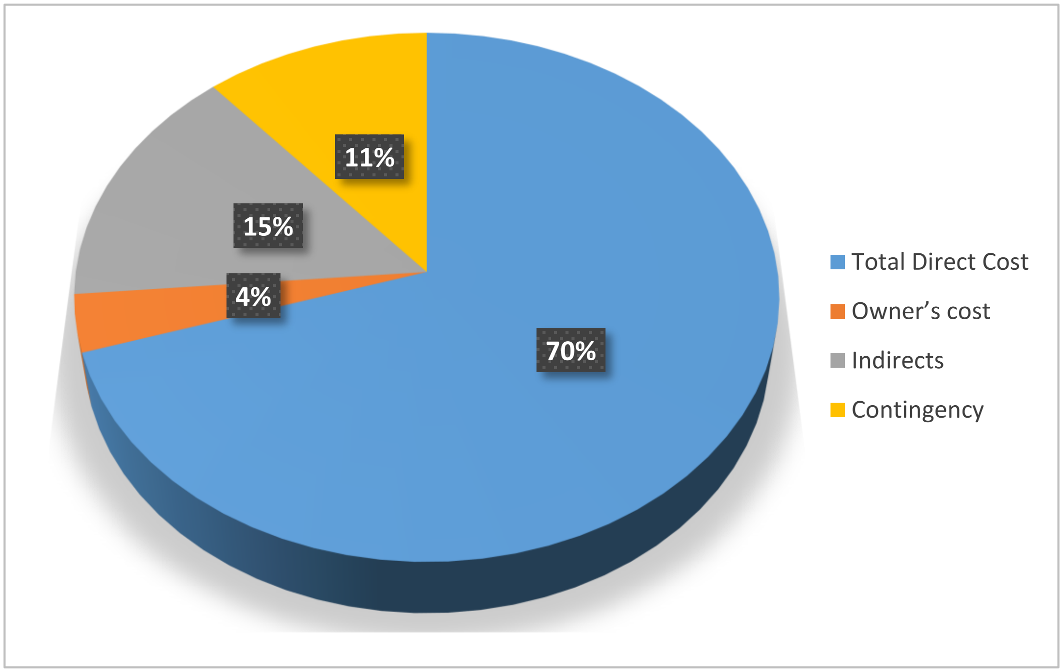


Figure 1-13: Direct Cost Breakdown

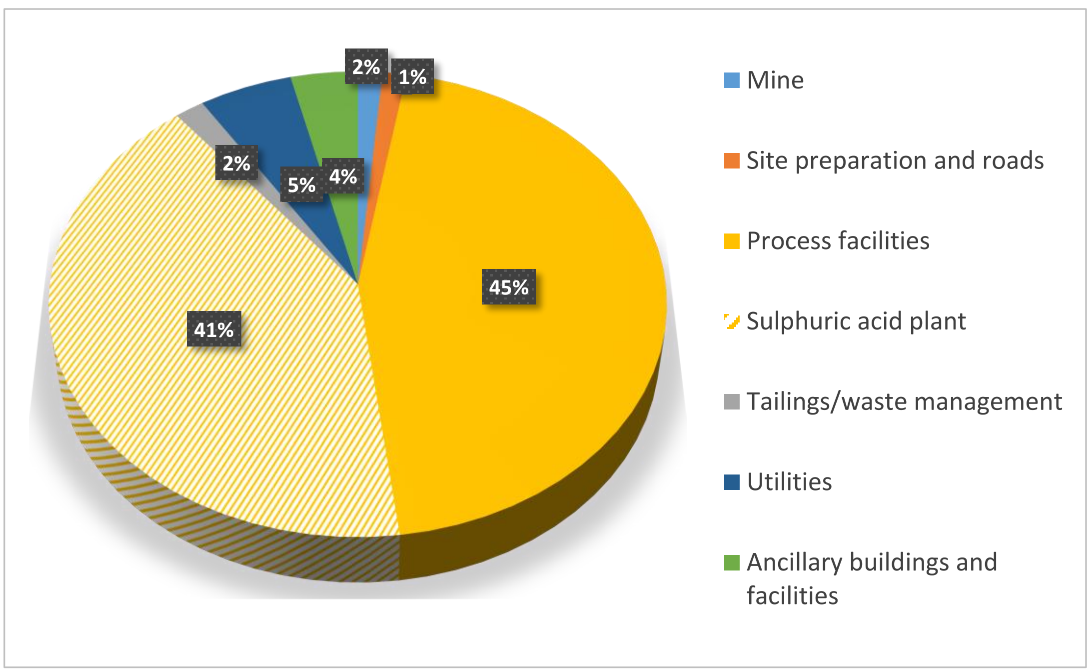
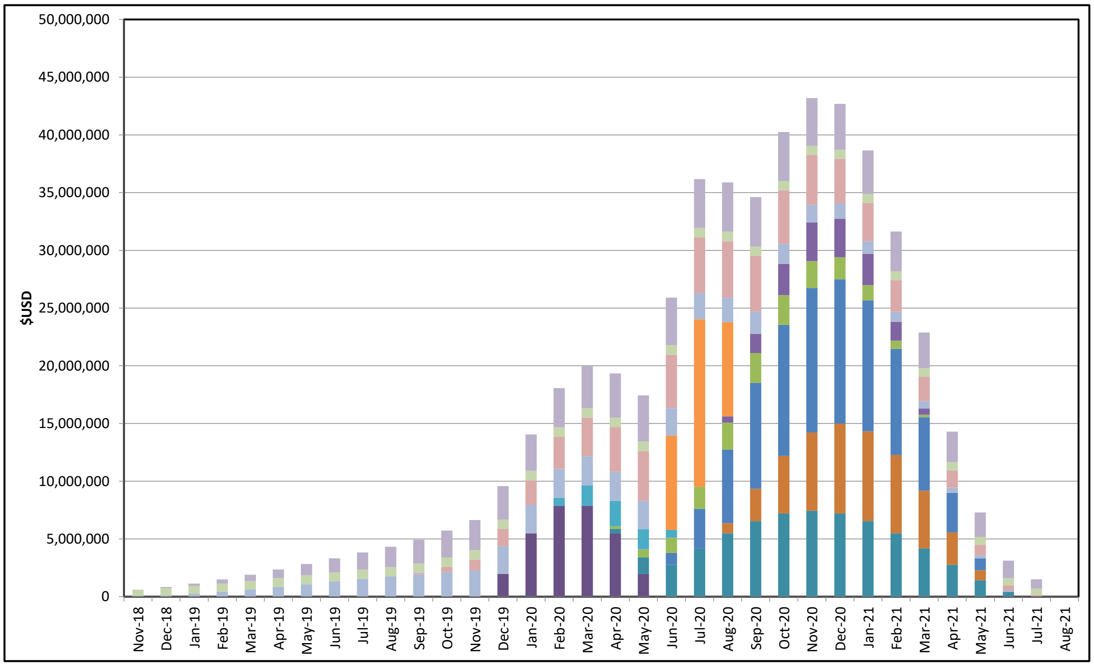


Figure 1-14: Cash Flow



Estimate Classification

This estimate falls under the AACE Class 4 Estimate classification and is expected to be within ±25% of the estimated final project cost, including contingency.

1.12 Operating Cost and Sustaining Capital Estimate

Contract mining is assumed for the first 18 months, the last half of 2021, and all of 2022. Contract mining costs were provided by Kiewit and are inclusive of contractor overheads, taxes, operating margin, labor, supervision, equipment recovery, diesel fuel, and explosives. The average contract mining cost for all cases is $2.66/t for 2021 and $2.50/t for 2022.

One tonne of lithium carbonate and 8.4 t of boric acid (8.4 t of boric acid is the equivalent to 0.58 t of lithium carbonate) will be produced from 129 t of ore mined.

Table 1-12 provides a summary of the cash operating costs per tonne processed.

Table 1-12: Cash Operating Cost per Tonne Processed

Operating Cost Area	Units	A3500 LOM
Mining	$/t processed	16.52
Processing Variable	$/t processed	25.43
Processing and G&A Fixed	$/t processed	6.01
Total Cash Operating Costs	**$/t processed**	**47.96**

Processing costs include the costs for operating and maintaining the processing facilities, from the ROM stockpile through to concentrate loadout. Also included is the transport of waste salt and ore residue to the residue storage facility. The processing costs account for the expenses associated with purchasing consumables, equipment maintenance, personnel, and power consumption.

Consumables costs include items such as sulfur feed to the acid plant, as well as all chemical reagents and diesel for process equipment. The reagent costs are inclusive of freight for shipping the items to site. Acid plant catalyst for catalyst exchange are excluded from operating costs, but included in sustaining capital costs. Diesel for mobile equipment is included with the mobile equipment operating costs.

Equipment maintenance supplies and materials are estimated as a percentage of the capital cost of equipment. Maintenance labor costs are calculated assuming there will be a property-wide maintenance department. The mobile equipment maintenance cost is built from hourly operating factors; it has been assumed the maintenance will be outsourced.

Power consumption was derived from the estimated load of individual pieces of equipment on the equipment list. In Year 4 of operations, the steam turbine generator (STG) will be installed, enabling a net export of power to the grid and an associated reduction in power costs in Year 5.

In Year 3, the battery-grade plant expansion is planned. This will cause a marginal increase in power consumption and the added consumption of CO_2 in Year 4. An allowance is included for these incremental costs in the operating cost estimate.

Laboratory testwork is included as an allowance.

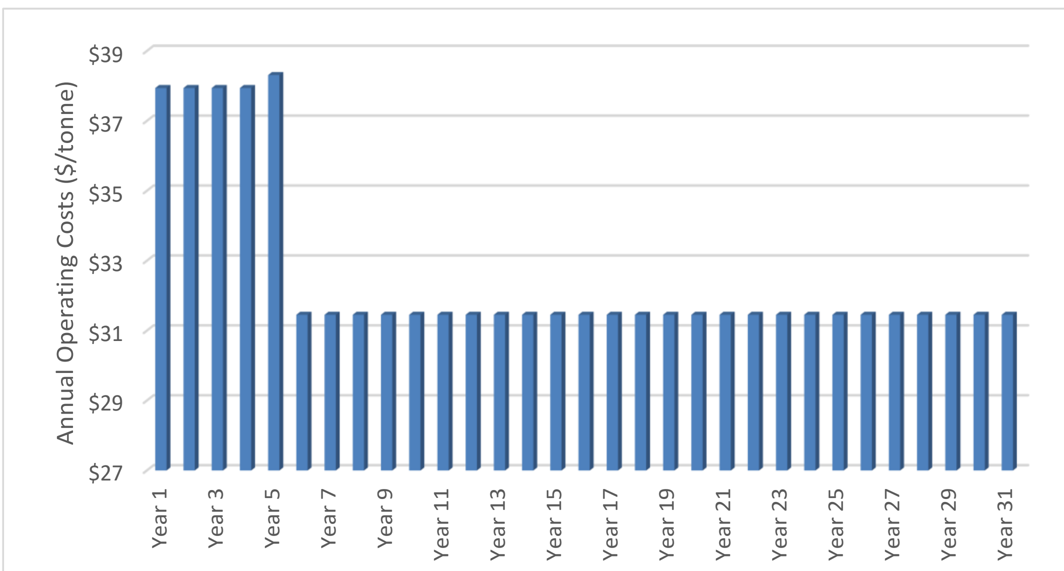
Process operating costs are shown in Table 1-13 for Year 5 and beyond.

Figure 1-15 shows the annual operating costs over the life of the mine for the A3500 case.

Table 1-13: Processing Costs, Year 5 and Onwards

Item	A3500 Case Annual Total ($k)	A3500 Case $/t Processed
Power	-14,444	-5.35
Reagents and Consumables	78,928	29.23
Labor	9,073	3.36
Mobile Equipment	1,386	0.51
Laboratory	1,000	0.37
Maintenance Costs	4,994	1.85
Battery-Grade Expansion Allowance	1,000	0.37
Total	**81,927**	**30.34**

Figure 1-15: Annual Operating Costs, A3500 Case



Sustaining Capital

No costs for sustaining capital were included in the capital cost estimate; however, the costs outlined in Table 1.14 are included in the financial model.

Table 1-14: Sustaining Capital

Description	A3500 $M
Residue storage facility expansion	40.70
Battery grade process plant expansion	35.42
Process mobile equipment replacement	6.48
Plant equipment refurbishment	32.39
Acid Plant	
Steam turbine and acid plant heat recovery system	38.60
Acid plant catalyst exchange	4.30

1.13 Financial Analysis

An economic analysis of the project was completed using both pre-tax and after-tax discounted cash flow analyses. The economic analysis is focused on a 3,500 t/d acid plant mined within the LOM pit (A3500 case).

Using a discount rate of 7%, the after-tax project NPV is $1,819.7 M.

Table 1-15 provides a summary of key financial outcomes, assuming no debt financing.

Table 1-15: Case Financial Statistics without Debt Financing

Financial Statistic	Units	A3500 LOM
Cash Flow Pre-tax		
Undiscounted cumulative cash flow	US$M	8,008.5
NPV @ 5%	US$M	3,121.2
NPV @ 7%	**US$M**	**2,217.3**
NPV @ 10%	US$M	1,359.6
Payback period (from start of operations)	years	4.0
IRR pre-tax	%	29.8%
After-tax Valuation Indicators		
Undiscounted cumulative cash flow	US$M	6,617.4
NPV @ 5%	US$M	2,571.4
NPV @ 7%	**US$M**	**1,819.7**
NPV @ 10%	US$M	1,104.3
Payback period (from start of operations)	years	4.1

Financial Statistic	Units	A3500 LOM
IRR after tax	%	27.7%

Table 1-16 provides a summary of the key financial outcomes for the project assuming 60% debt financing of the original capital, a 10-year term, and an 8% interest rate.

Table 1-16: Case Financial Statistics with 60% Debt Financing

Financial Statistic	Units	A3500 LOM
Cash Flow Pre-tax		
Undiscounted cumulative cash flow	US$M	7,781.6
NPV @ 5%	US$M	3,053.3
NPV @ 7%	**US$M**	**2,192.9**
NPV @ 10%	US$M	1,385.8
Payback period (from start of operations)	years	2.9
IRR pre-tax	%	44.2%
After-tax Valuation Indicators		
Undiscounted cumulative cash flow	US$M	6,426.4
NPV @ 5%	US$M	2,528.5
NPV @ 7%	**US$M**	**1,817.2**
NPV @ 10%	US$M	1,148.5
Payback period (from start of operations)	years	3.0
IRR after tax	%	41.8%

Regardless of the case tested, the project is most sensitive to changes in metal price and grade, followed by changes to operating costs and capital costs. The project's NPV@7% is least sensitive to capital costs. Representative after-tax sensitivity charts are shown for the A3500 case in Figure 1-16 through Figure 1-18.

Figure 1-16: A3500 Case – No Debt, After-tax Cash Flow Sensitivity

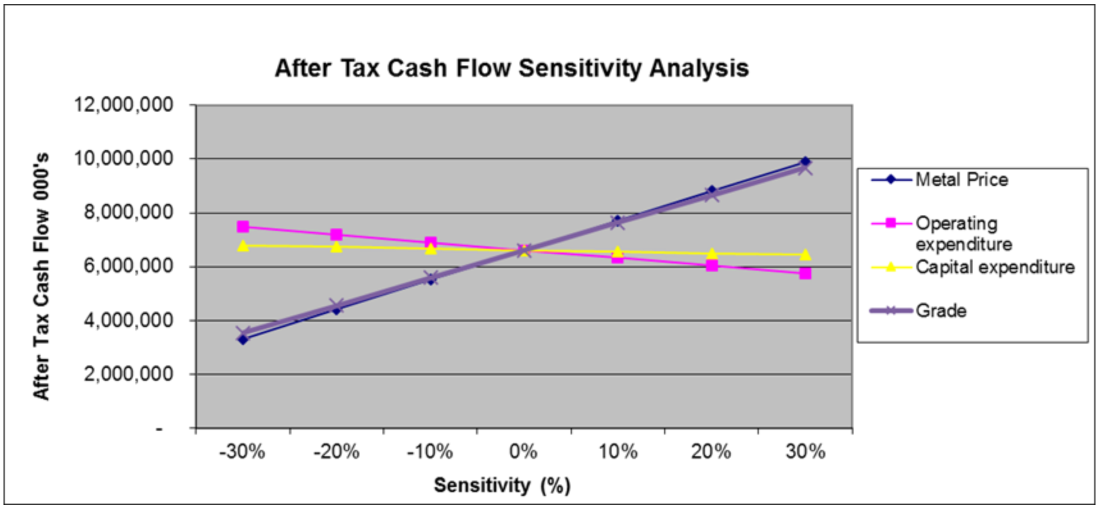


Figure 1-17: A3500 Case – No Debt, After-tax NPV@7% Sensitivity

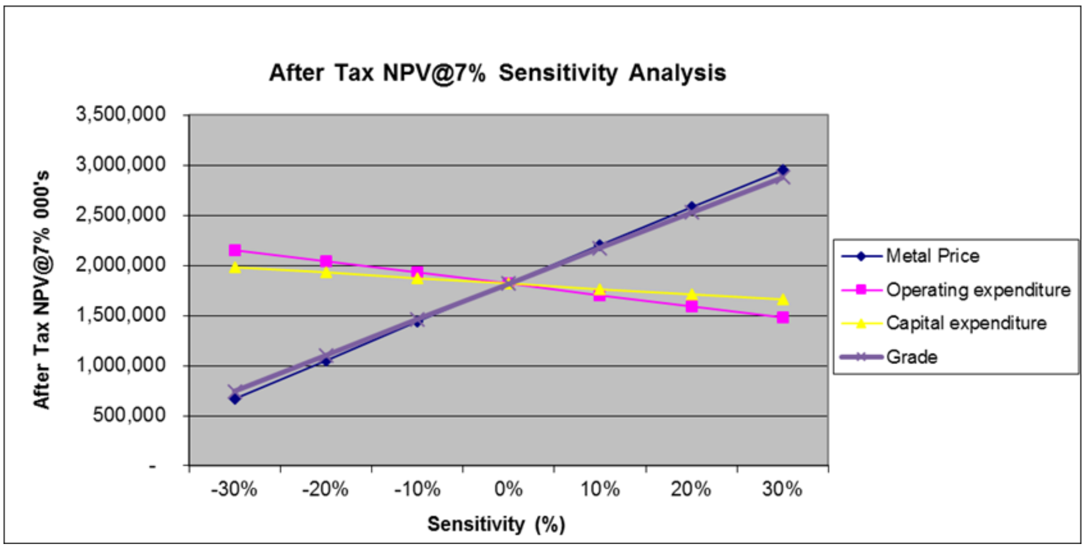
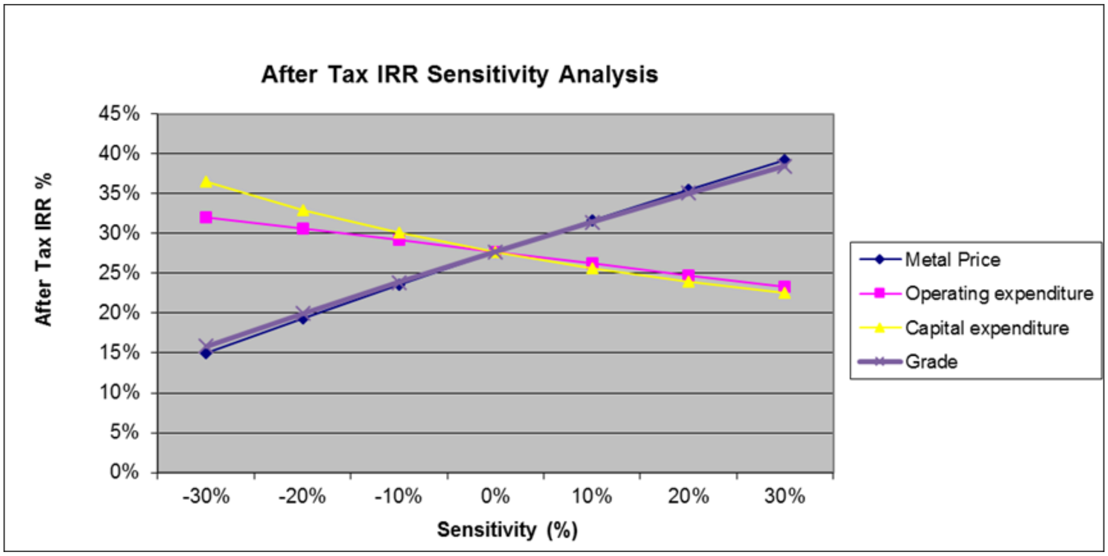


Figure 1-18: A3500 Case – No Debt, After-tax IRR Sensitivity



1.14 Risk Management

Effective risk management is integral to the capital investment cycle, from evaluation of a business development opportunity through the project development stages, project execution, operations and ultimately closure and reclamation. A structured and thorough understanding of the key risks and opportunities of the investment allows the project team to focus their attention and better allocate resources.

Various project risk reviews were carried out, including structured risk workshops and informal risk identification. Key risks identified include:

- Capital cost increase possible due to:
  - schedule delay
  - improved geotechnical information.
- Project schedule delay possible due to:
  - environmental permit approval/requirement to complete an EIS
  - project funding release
  - major equipment lead times
  - lower-than-assumed craft productivity.

- Operations cost/production impact due to:
  - lithium market price
  - boric acid market price
  - reagent pricing
  - product quality
  - unable to achieve design capacity
  - availability of a qualified workforce
  - lack of water.
- Health and safety risk from:
  - car/bus crash.

The project has proactively made decisions to minimize risk. These decisions include:

- beginning production with technical-grade lithium carbonate, followed by battery-grade production in Year 3
- using contract mining for the first two years.

As the project advances through the next stages, increased definition will change the project risk profile and allow the project team to develop appropriate management/mitigation plans for all key project risks to a higher level of detail. Opportunities to improve project economics and parameters will also be considered in the next phases.

1.15 Recommendations

It is recommended the project advance into the feasibility stage. Key items for additional study include:

- additional vat testing on the interface material to determine the optimum method of treating this material
- testwork and trade-off study relating to various lithium products including battery-grade lithium carbonate and lithium hydroxide
- pilot testing of the process to confirm recycles and provide sample product for customers

- complete infill and geotechnical drilling for the starter quarry
- geotechnical sampling and testing for the quarry, process plant and residue storage
- additional engineering and procurement to meet an AACE class 2 estimate
- order placement for critical and long-lead items and contracts.