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# James Bay Lithium Project
# Feasibility Study & Maiden Ore Reserve

Allkem Limited (ASX |TSX: AKE) (**"Allkem"** or the **"Company"**) advises the release of the Feasibility Study and Maiden Ore Reserve for its wholly owned James Bay Lithium Project ("**James Bay**" or the "**Project**") located in Québec, Canada.

## HIGHLIGHTS

- Feasibility Study confirms a sustainable, high value hard rock lithium operation utilising renewable hydropower
- Material ~2.5x increase in Net Present Value ("**NPV"**) from the Preliminary Economic Assessment ("**PEA"**) released in March 2021
- Construction planned to commence in Q3 CY2022 with commissioning in the first quarter of CY24, subject to receipt of necessary environmental and other approvals
- Strategically located in proximity to high-growth electric vehicle markets in North America and Europe

### Project Details

- Mineral Resource of 40.3Mt at 1.4% $Li_2O$ and Maiden Ore Reserve of 37.2Mt at 1.3% $Li_2O$ provides a long life, low cost spodumene operation
- Average annual production of 321ktpa of spodumene concentrate with a 19 year mine life
- Shallow, near-surface mineralisation ideal for open cut mining with a low life-of-mine ("**LOM"**) strip ratio of 3.5: 1
- 2mtpa process plant designed to produce up to 6% $Li_2O$ spodumene concentrate
- Very similar process design and flowsheet to that already successfully employed at Mt Cattlin
- Low-cost, sustainable source of hydropower to provide approximately 45% of site power needs
- Strong relationships with the Cree Nation of Eastmain, Cree Nation Government and all stakeholders

### Project Financials

- Capital cost estimate of USD285.8 million on the optimised mine plan, flowsheet and schedule
- Cash operating costs (FOB Montreal) of USD333 per tonne of 5.6% $Li_2O$ concentrate
- Pre-tax NPV of USD1.42 billion at an 8% discount rate and post-tax NPV of USD823 million
- Pre-tax Internal Rate of Return ("**IRR"**) of 45.8% and pre-tax payback period of 2.4 years
- Post-tax Internal Rate of Return ("**IRR"**) of 35.2% and post-tax payback period of 2.9 years

### Project Execution

- Basic engineering has commenced alongside the procurement process for key equipment, temporary installations, contracts and preparation of construction permits
- Completion of the feasibility study and report prepared in compliance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("**NI 43-101**") allows the Impact and Benefit Agreement ("**IBA**") negotiations and Environmental and Social Impact Assessment ("**ESIA**") approvals to be continued and completed
- Further carbon studies and initiatives underway to align the project to Allkem's target of transitioning to net-zero emissions by 2035
- Downstream studies continue, examining options for value adding from the conversion of James Bay's spodumene concentrate

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**Managing Director and Chief Executive Officer, Martin Perez de Solay commented**

*"The Feasibility Study results clearly demonstrate the exceptional value that will be generated for all stakeholders through the development of this project. It will utilise clean hydro-power to provide lithium into the EV and other low carbon industries. Supply chain and logistics emissions can be minimised by supplying into the rapidly expanding markets in North America and Europe."*

## PROJECT BACKGROUND

The Project is located in northern Québec, approximately 130 km east of James Bay and the Cree Nation of Eastmain community as illustrated in Figure 1. The Company is proposing to develop a spodumene mine located adjacent to the Billy Diamond Highway (formerly the James Bay Highway) which provides access to key infrastructure in the region.

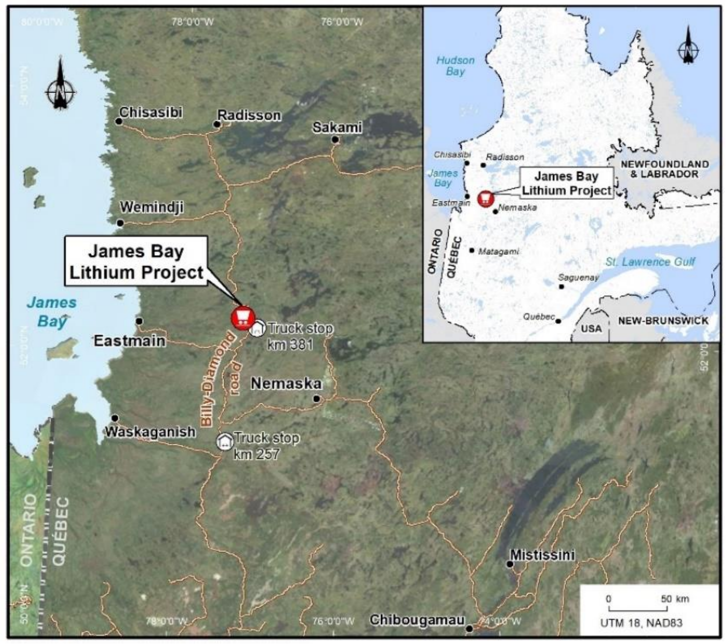


*Figure 1: James Bay Project Location*

G Mining Services Inc. ("**GMS**") was engaged by the Company to produce the Feasibility Study and technical report in accordance with NI 43-101. GMS is a specialised mining consultancy based in Canada with wide experience in developing mineral projects.

### Québec, Canada

Québec is a highly attractive investment destination for lithium production due to its supportive resource development sector, access to skilled labour and its proximity to the emerging European and North American electric vehicle markets. Canada also has free trade agreements with the United States and the European Union.

The province provides a viable source of low-cost, low-carbon power with its electricity production sector having one of the lowest carbon footprints in the world. The electricity produced is derived from sources that are more than 99.8% renewable, mainly hydropower.

The Québec Government is also committed to reducing its carbon emissions and building accessibility and availability of battery metals to fuel the development of a green economy. Its '2030 Plan for a Green Economy' targets a 37.5% reduction in carbon emissions compared to 1990 levels and outlines a framework for the electrification of transportation. The Government has also released a 'Plan for the Development of Critical and Strategic Minerals (2020-2025)' which includes lithium and details commitments to share financial risk, as well as infrastructure improvements for projects in northern Québec.

## GEOLOGY & MINERALISATION

The Project is in the northeastern part of the Superior Province and lies within the Lower Eastmain Group of the Eastmain greenstone belt. This area predominantly consists of amphibolite grade mafic to felsic metavolcanic rocks, metasedimentary rocks and minor gabbroic intrusions.

The pegmatites delineated on the property to date are oriented in a generally parallel direction to each other and are separated by barren host rock of sedimentary origin (metamorphosed to amphibolite facies). They form irregular dikes attaining up to 60 m in width and over 200 m in length. The pegmatites crosscut the regional foliation at a high angle, striking to the south-southwest and dipping moderately to the west-northwest, with a true thickness that is wider than what is currently mined at Mt Cattlin.

Spodumene mineralisation at James Bay is coarse grained, high grade and outcrops along strike, supporting excellent recoveries, low strip ratio and open cut mining. No significant deleterious lithium mineralisation has been identified to date.

## RESOURCE & RESERVE ESTIMATE

The Mineral Resource and Ore Reserve estimates set out below have been prepared in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (2019).

### Mineral Resource Estimate

The Mineral Resource Statement presented herein represents the second mineral resource evaluation prepared for the Project, and remains unchanged since the release of the PEA in March 2021

The mineral resource model was released on December 4, 2017 by Galaxy Resources Ltd., and considered 102 core boreholes drilled by Lithium One Inc during the period of 2008 to 2009, 53 channel samples collected by Lithium One in 2009 and 2010, and 157 core boreholes drilled in 2017.

The resource estimation work has been certified by Mr. James Purchase, P.Geo of GMS , an independent Qualified Person as defined in NI 43-101 and a Competent Person under JORC (for the purpose of this news release, a Qualified Person under NI 43-101 and a Competent Person under JORC will be collectively referred to herein as a "Competent Person"). Comprehensive verification of all data pertaining to the Mineral Resource Estimate released in 2017 has been undertaken, and a site visit to the project was conducted in June 2021. This estimate displayed in Table 1 below remains current, given that only minor geotechnical and metallurgical drilling has been performed since 2017, which has had no material effect on the estimate.

***Table 1: James Bay Mineral Resource Estimate – (effective date November 23$^{rd}$, 2017, restated in December 2021 by GMS)***

| Category | Tonnage Mt | Grade % $Li_2O$ | Contained Metal ('000) t $Li_2O$ |
|---|---|---|---|
| Indicated | 40.30 | 1.40 | 564.2 |
| **Total** | **40.30** | **1.40** | **564.2** |

Note: The Mineral Resource Estimate is reported at a cut-off grade of 0.62% $Li_2O$ inside a conceptual pit shell optimised using spodumene concentrate price of USD 950/t containing 6.0% $Li_2O$, metallurgical and process recovery of 70%, overall mining and processing costs of USD 55/t milled and overall pit slope of 50 degrees. All figures are rounded to reflect the relative accuracy of the estimates. Mineral resources are not mineral reserves and do not have demonstrated economic viability.

### Ore Reserve Estimate

The Mineral Reserve of 37.2 Mt at an average grade of 1.3% $Li_2O$ was prepared by GMS and demonstrates Probable Ore Reserves are economic for concentrate production (Table 2).

***Table 2: James Bay Ore Reserve – December 2021***

| Category | Ore tonnage (k dmt) | Lithium grade (%$Li_2O$) | Contained Metal ('000) t $Li_2O$ |
|---|---|---|---|
| Proven | 0 | 0 | 0 |
| Probable | 37,207 | 1.30 | 483.7 |
| **Proven + Probable** | **37,207** | **1.30** | **483.7** |

Notes:

1. Effective date of the estimate is December 2021;
2. Mineral Reserves are estimated using the following long-term metal prices ($Li_2O$ Conc = USD 950/t $Li_2O$ at 6.0% $Li_2O$) and an exchange rate of CAD/USD 1.33;



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3. A minimum mining width of 5 m was used;
4. Cut-off grade of 0.62% $Li_2O$;
5. Bulk density of ore is variable, outlined in the geological block model and average 2.7 g/t;
6. The average strip ratio is 3.54:1;
7. The average mining dilution factor is 3.0% at 0.38% $Li_2O$.

Details of data collection and resource and reserve estimation techniques, methodology and material assumptions are provided in the JORC Table 1 checklist set out in Annexure B.

## MINING AND PROCESSING

### Mining

Mine engineering was performed by GMS and a summary of the key physicals are displayed in Table 3 below.

***Table 3: Summary of Life of Mine Physicals for an estimated 18.8 year mine life***

| Key Physicals | UoM | Feasibility Study |
|---|---|---|
| Mined material grade (after mining dilution) | *%* | 1.30 |
| Strip ratio | *X : 1* | 3.54 |
| Spodumene Concentrate Produced (total after transport losses) | *kdmt* | 6,026 |
| Spodumene Concentrate Produced (annual average) | *kt* | 321 |
| Recovery | *%* | 70.1 |
| Spodumene Concentrate Grade | *% $Li_2O$* | 5.6 |

The pegmatite deposit will be mined by conventional open pit methods. All material will require drilling and blasting and will be removed using mining excavators and haul trucks.

The preliminary pit design extends approximately 2km NW/SE along the strike of the pegmatite mineralisation and has an average width of 500m. The design is divided into three pits with depths of 160m, 170m and 260m.

Mining is scheduled to achieve low waste stripping in the initial years with a gradual increase later in the mine life. The average strip ratio for the LOM plan is 3.54:1.

Waste rock will be hauled to multiple Waste Rock and Tailings Storage Facilities ("**WRTSF**") and run of mine ("**ROM**") feed material will be hauled to the ROM pad, located to the northeast of the pits.

Figure 2 is based on the preliminary mine plan / LOM schedule and shows the mine plan tonnages by year with pre-strip activities commencing two years prior (Y1 and Y2) to first production (Y3). Mining covers 18.8 years of production with 126.1 Mt of waste rock, 5.6 Mt of overburden and 37.2 Mt of ROM feed material for a total of 168.9 Mt of material mined.

In the pre-production period, the ROM material generated will be stockpiled for processing during production years. Site preparation including tree clearing, grubbing and peat/topsoil removal will occur during the Project construction phase.

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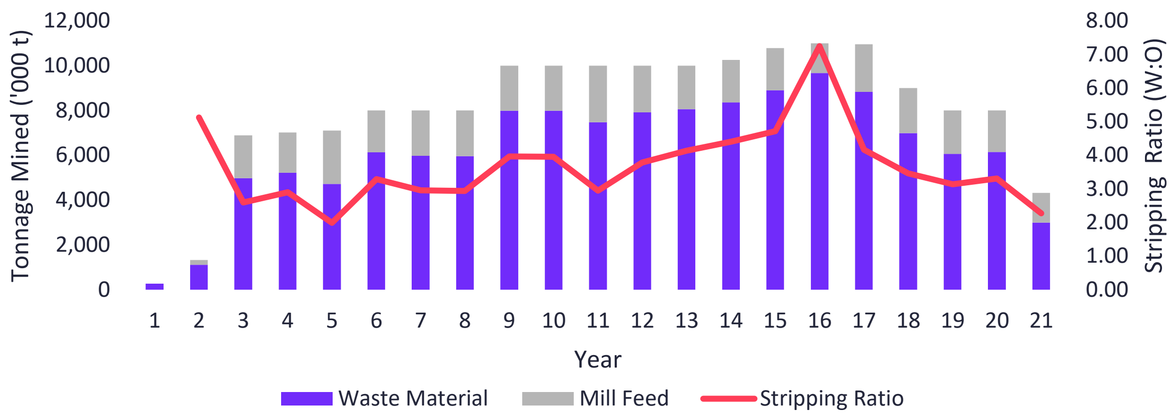
*Figure 2: Annual mined material and stripping ratio*




Surface mining equipment requirements are based on mining 10m benches. Conventional excavator and truck fleet will be sized to meet the planned tonnage requirements to feed the concentrator at 2Mtpa. Haul trucks are required to transport tailings from the plant to the proposed waste rock and dry stacked tailings stockpile areas.

## Processing

Process Plant engineering was performed by Wave International ("**Wave**"), an Australian-based engineering company with global development experience.

The process design is based on an annual throughput of 2Mt of ore to produce a final product grade of 6.0% $Li_2O$, with operational flexibility to increase recovery by reducing concentrate grade to 5.6% $Li_2O$. The selected process is similar to that currently utilised at the Company's Mt Cattlin mining operation in Australia which incorporates a similar flowsheet based on crushing and dense medium separation ("**DMS**").

Processing involves a conventional three-stage crushing circuit, followed by a DMS plant (Figure 3). Similar to Mt Cattlin, crystal sizes are coarse and therefore grinding and flotation methods are not necessary, contributing to low operating costs. Other sub processes include:

- Dewatering and dry stack tailings disposal system (combined with waste rock disposal);
- water, air and ancillary services; and
- spodumene concentrate stockpile and dispatch system.

The ROM ore will be fed to a three-stage crushing plant consisting of a primary jaw crusher, a secondary crusher and tertiary crusher. Prior to feeding the DMS cyclones, the material will be mixed with a ferrosilicon slurry, which acts as a densifying medium to enhance the gravity separation of the spodumene.

The primary coarse product from the DMS will report to the secondary coarse DMS cyclones where the process is repeated to achieve the target concentrate grade. The other DMS streams will be dewatered over a series of screens and conveyed to either the tailings loadout facility or secondary fine DMS for re-processing, eventually reporting to the final product. After processing, the concentrate is conveyed to the product stockpile from where it is loaded on to road trucks and transported to end users.

For recovery enhancement, the oversize material from the secondary floats screen is re-crushed using a rolls crusher. After removal of the ultra-fines material, which is sent to the tailing treatment area, the oversize is processed through the re-crush DMS plant which follows the same process as the primary and secondary DMS circuits.



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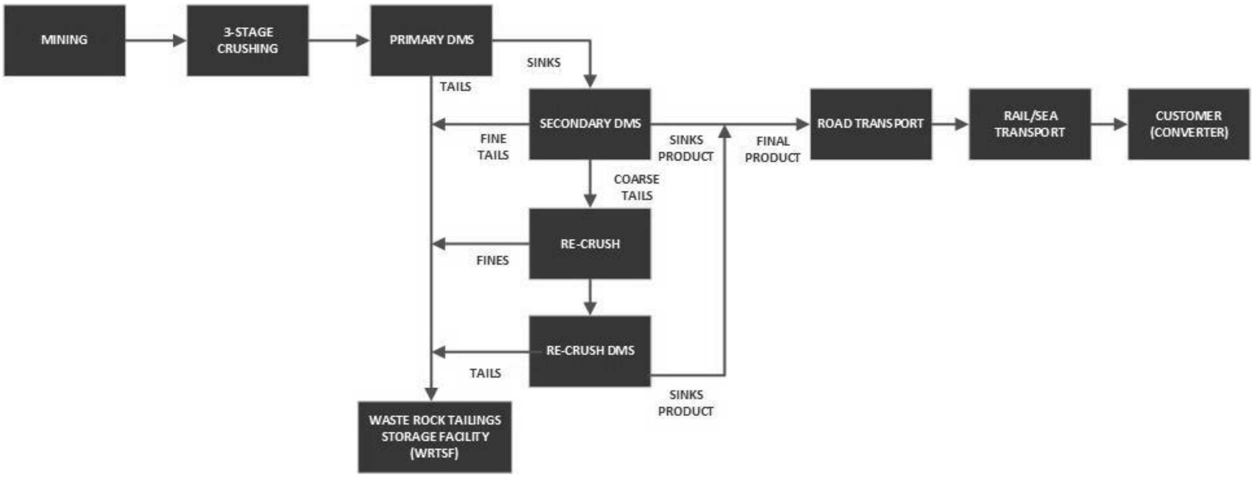
*Figure 3: James Bay process flowsheet*




### Final Product Grade

Metallurgical test work was conducted by SGS Canada Inc. and Nagrom to determine optimal plant operating recoveries. For a final spodumene concentrate grading 5.6% $Li_2O$, modelling indicates that a recovery of 71.2% in the early years and 66.5% in later operating years is a reasonable assumption.

Supply side tightness in raw materials is projected to continue for the medium to long term and in line with this market demand, project economics are based on the production and sale of a 5.6% $Li_2O$ final product grade. This product grade yields higher recoveries and revenues associated with higher concentrate production. Metallurgical modelling predicts a 6% improvement in recovery, an 18% increase in final product tonnage and a 12% increase in revenue under forecast spodumene concentrate prices, under this operating regime.

James Bay will produce an average of 321ktpa of spodumene concentrate for 18.8 years and retains ultimate flexibility to produce final product grade consistent with market and customer demand. Allkem's final product specification will ultimately be determined in consultation with its customers.

## INFRASTRUCTURE

Waste Rock and Tailings Storage facility engineering was performed by Golder Associated Ltd. ("**Golder**") and site infrastructure engineering was performed by GMS.

### Mine Infrastructure

The site infrastructure will include:

- ROM pad and stockpile
- Crushed ore covered stockpile
- Four Waste Rock Tailings Storage Facilities
- Overburden and peat storage area ("**OPSF**")
- Two Water Management Ponds and Plant Water Management Pond
- Contact water ditches and non-contact diversion water ditches
- Fine and coarse tailing warehouse
- Spodumene concentrate warehouse
- Emulsion and explosive storage

The ROM stockpile and spodumene concentrate warehouse will be located adjacent to the process plant. All storage areas were selected to minimise their environmental impact. A surface drainage network will



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be built to divert non-contact water from the ROM pad and stockpile, WRTSF, OPSF stockpiles and process plant. The same strategy will be used to manage the surface water run-off (contact) for all disturbed land.

### Supporting Infrastructure & Logistics

The following infrastructure facilities are planned for the Project:

- 69 kV Main-substation
- Administrative and laboratory buildings
- Accommodation camp
- Workshop and reagent buildings
- Storage and communication facilities
- Distribution facility for heating
- Water and sewage treatment plants

James Bay is well serviced by key infrastructure in the region, including Hydro-Québec power which provides a low-cost, clean energy source for the site and process plant. The process plant and supporting infrastructure will predominantly be powered by Hydro-Québec's 69 kV overhead distribution system. The 69 kV distribution line is relayed through Hydro-Québec's Muskeg substation and ultimately fed by the Némiscau substation located roughly 100 km southwest of the Project site. An overhead distribution line extension will be built to the plant substation from the 69 kV line (L-614) located 10km south of the Project site. The 69 kV power supply is limited by a capacity of 8 MVA due to the sensitivity of the network and distance from the substation.

The Project is also accessible all year-round via the paved Billy Diamond Highway which allows oversized haul trucking to and from site, including the town of Matagami, located 382km south of the Project. Matagami is connected to a major railway, the Canadian National Railway network, allowing future production to be railed to various locations in North America or any port along the Saint-Lawrence River for international shipment.

The Eastmain airport is located 130 km from site and will be used to transport staff and contractors from major centres in southern Québec. Discussions are underway with Transport Canada about necessary upgrades required to create more regular aerial services to support future operations. Fuel and accommodation are also available at the "Relais Routier Km 381" Truck Stop, a sizeable facility, located adjacent to the Project site.

The Québec Government and the Cree Nation signed a Grand Alliance agreement for collaborative, long-term, economic development in the James Bay region. The Grand Alliance plans to invest heavily in infrastructure, including railways and roads, providing future transport and logistic opportunities. Allkem continues to work with various stakeholders including the Cree Nation to understand how elements of the Grand Alliance can potentially be integrated into the Project.

## FINANCIAL PERFORMANCE

### Capital and Operating Costs

GMS completed the capital and operating costs, incorporating engineering undertaken by other contributors.

The total initial project development capital expenditure ("**CAPEX**") is estimated to be USD285.8 million. The CAPEX has been prepared to reflect optimised site layouts, mine scheduling, plant and equipment design, supply and installation. The estimate is detailed in Table 4 and includes processing, mine equipment

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purchases, infrastructure, contingency and other direct and indirect costs. Deferred CAPEX is also required during operations for additional equipment purchases, a truck shop bay addition, and mine civil works.

Operating costs ("**OPEX**") are estimated to be USD333 per tonne of concentrate (FOB Montreal). OPEX includes mining, processing, general and administrative services, concentrate transportation and royalties as detailed in Table 4.

***Table 4: Capital Cost Estimates and Operating Cost Estimate***

| Capital Costs | USD M | % |
|---|---|---|
| **Direct Costs** | | |
| Mine Fleet | 27.1 | 9.4 |
| Processing | 65.9 | 23.1 |
| Civil Works | 25.3 | 8.9 |
| On site infrastructure | 32.4 | 11.3 |
| Power Supply & Distribution | 31.4 | 11.0 |
| Offsite Infrastructure | 2.0 | 0.7 |
| **Total Direct CAPEX** | **184.1** | **64.4** |
| **Indirect Costs** | | |
| EPCM Services | 16.5 | 5.8 |
| Owner's cost | 4.6 | 1.6 |
| Temporary Infrastructure | 14.0 | 4.9 |
| Other | 30.7 | 10.7 |
| Contingency | 20.9 | 7.3 |
| Cost escalation reserve | 15.0 | 5.2 |
| **Total Indirect CAPEX** | **101.7** | **35.6** |
| **Total CAPEX** | **285.8** | ***100.0*** |

| Operating Costs | USD / tonne |
|---|---|
| | |
| Mining | 101.9 |
| Processing | 61.4 |
| Administration & Other | 64.2 |
| Transport & Port | 87.9 |
| Royalties | 17.4 |
| **Total OPEX (FOB Montreal)** | **332.8** |

Since release of the PEA, Feasibility Study work undertaken has improved the accuracy of the capital and operating costs, particularly mining, processing and transport. The key findings include:

- Review and optimisation of the mine plan and material movements during the detailed mine planning and scheduling phase;
- Investigation into the automation of drilling and haulage to boost productivity;
- Ongoing discussions with Hydro-Québec to optimise delivery of power to site resulting in reduction of capital investment.

The key changes in capital expenditure from the PEA to the feasibility study are displayed in Table 5 below.

***Table 5: Capital expenditure differences from the PEA to Feasibility Study***

| | USDM |
|---|---|
| Additional environmental protection systems | 10 |
| Inflation/market prices | 7.5 |
| Design change | 4 |
| Additional process equipment | 7.5 |
| Design growth | 5 |
| Savings on power contract | (8.5) |
| Addition of a Reserve (Market uncertainties) | 15 |
| **Total** | **40.5** |



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**Spodumene Pricing Forecast**

Lithium demand has historically been driven by macro-economic growth, but the increasing use of rechargeable batteries in electrified vehicles over the last several years has been the key driver of global demand. According to Roskill (Lithium 18th Edition Update 1 – October 2021), global demand between 2015 and 2020 almost doubled, reaching 388.4 kt lithium carbonate equivalent ("**LCE**") with a Compound Annual Growth Rate ("**CAGR**") of 14.0% over the period. Adding to this growth, global lithium demand in 2021 is expected to increase by 33.8% to 519.6 kt LCE as demand for rechargeable batteries grows further.

Roskill forecasts global lithium demand to grow at 19.21% CAGR over the next decade from 520 ktpa in 2021 to over 3,000 ktpa by 2031. Lithium demand is derived from the expected build-out of the battery production, with 2,733 GWh capacity required across all end-use applications.

Growth in lithium demand will outpace rising supply by 2025 when the mine market balance is expected to record a deficit. With additional capacity being brought on in 2023 and 2024 it is forecast that the market will return to a small surplus before entering a long-term structural deficit. Limited investments in both exploration and capacity over the last several years is likely to manifest itself from 2025 where increases in supply will be insufficient to keep up with the strong growth in demand for mineral feedstock by mineral converters. Without new supply from development of new projects, the supply deficit will continue to grow driving lithium prices upwards.

Spodumene concentrate will continue to feature as a key feedstock in the global lithium supply chain and increasing tonnages will be required to meet future demand for refined lithium. Roskill are forecasting contract prices for chemical grade spodumene concentrate to range between USD 754/t and USD 1,121/t between 2022 and 2031.

## PROJECT ECONOMICS

An economic analysis was developed using the discounted cash flow method and was based on the data and assumptions for capital and operating costs detailed in this report for mining, processing and associated infrastructure.

The basis of forecast spodumene pricing was provided by Roskill for the period 2021 to 2031, with a longer term price of USD1,121 used from 2031 onwards for 6% $Li_2O$.

The evaluation was undertaken on a 100% equity basis. The key assumptions and results of the economic evaluation are listed in Table 6 and Table 7 below.

***Table 6: Key assumptions utilised in the project economics***

| Assumption | Units | Feasibility Study |
|---|---|---|
| Annual Spodumene Concentrate Production[1] | *kt* | 321 |
| Commercial Production Estimate | *Years* | 18.75 |
| Discount Rate | *%* | 8 |
| Royalty | *%* | 1.5 |
| CAPEX | *USDM* | 285.8 |
| OPEX | *USD/ tonne* | 332.8 |
| Average Selling Price[2] | *USD/ tonne* | 1,001 |
| Exchange rate | *USD:CAD* | 1.33 |

[1] Final product grade of 5.6% $Li_2O$

[2] Based on spodumene price forecast provided from Roskill adjusted for 5.6% grade



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*Table 7: Summary of Financials over the estimated Life of Mine*

| Financial Summary | Units | Feasibility Study |
|---|---|---|
| NPV (Pre-tax) | *USDM* | 1,419.9 |
| NPV (Post-tax) | *USDM* | 823.0 |
| IRR (Pre-tax) | *%* | 45.8 |
| IRR (Post-tax) | *%* | 35.2 |
| Payback Period (Pre-tax) | *Years* | 2.4 |
| Payback Period (Post-tax) | *Years* | 2.9 |
| Capital Intensity (processing) | *USD / dmtpa* | 142.8 |
| NPV: Development Capex (Post-tax) | *X: 1* | 2.88:1 |

### Sensitivity Analysis

As displayed in Table 7, the Feasibility Study demonstrates strong financial outcomes with a Pre-tax $NPV_{8\%\ real}$ of USD1,419.9 million and IRR of 45.8%. Figure 4 analyses the impact on NPV when spodumene pricing, operating costs, development capital costs and foreign exchange fluctuate between +/- 20%. The NPV of the project is most sensitive to movements in the price of spodumene and foreign exchange fluctuations, followed by operating costs and development capital costs.

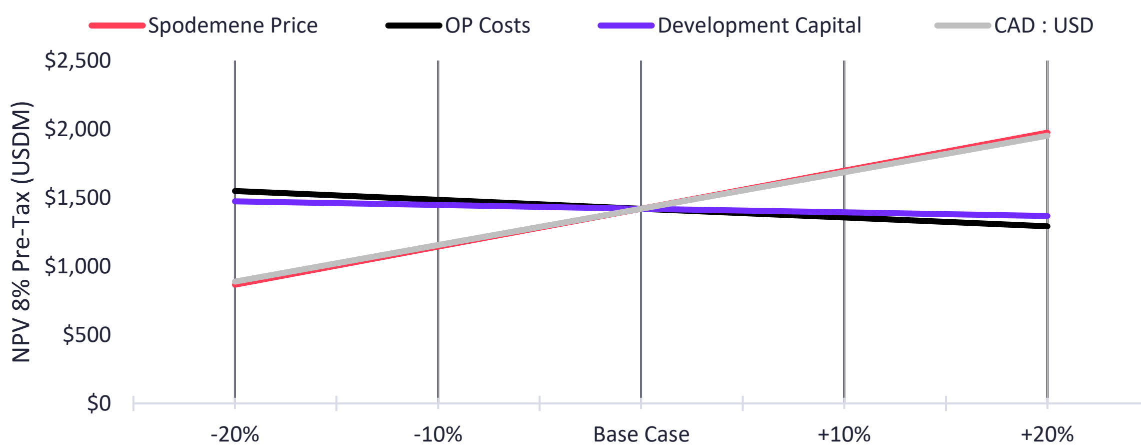


*Figure 4: Pre-tax NPV Sensitivity Analysis*

## ENVIRONMENTAL AND SOCIAL IMPACTS

Environmental and Permitting work packages were performed by WSP Canada Inc., a global professional services and engineering firm with environmental expertise and significant experience in facilitating project approvals and development projects.

### Carbon Emissions Management

Allkem is committed to the transition to net zero emissions by 2035 and is progressively implementing actions across the group to achieve this target. Each project within the group will contribute to this target in a different, but site appropriate manner.

As a greenfields project, James Bay has a unique opportunity to build a low carbon operation. The location of the project will provide access to hydro power supplied by Hydro Québec which delivers a significant advance in the overall decarbonisation of the project.

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As James Bay has only recently been integrated into the Allkem group through the merger of Orocobre Limited and Galaxy Resources Limited, much of the planning and project studies in this report were conducted without reference to Allkem's target.

As such, the project represented in this report will source 40-45% of total site energy needs from sustainable energy (Hydro Quebec) which will be delivered via an 8 MW connection to the Hydro Québec power network and will predominantly be utilised in the processing plant, fixed infrastructure and selected mobile equipment.

Future studies will focus on opportunities to increase the proportion of sustainable energy available to the project which will further reduce operational carbon emissions. The primary area to be investigated will be the supply of additional hydro power which may allow the potential conversion of the mining fleet and all site facilities away from fossil fuels. Allkem will work with project partners to identify and develop further emissions reduction opportunities within the project supply chain mostly around the availability of battery-power mobile equipment capable to operate in cold weather conditions. Additional studies are also planned to be conducted to replace petroleum hydrocarbons used for heating during cold winter with renewable sources.

Allkem will also engage with the Québec government which has demonstrated a strong commitment for renewable energy with the "2030 Plan for a Green Economy". The goals of this plan are aligned with Allkem's commitment to net zero via the replacement of fossil fuels in transport, buildings and industrial activity. The Québec government has also committed to develop and consolidate energy networks through the territory, particularly for critical and strategic mineral developments.

**Regulations and Permitting**

An Environmental and Social Impact Assessment ("**ESIA**") was submitted to the federal and provincial authorities in October 2018 and was updated and submitted in July 2021 to reflect changes to the project presented in the PEA. As part of the technical review of the ESIA, the Company addressed information requests and clarifications received from the authorities.

Following ESIA approval from regulators which the Company anticipates receiving within a reasonable timeframe, additional ancillary construction and operation permits from provincial authorities will be required prior to construction. Preparation of these permits commenced in October 2021.

**Community Engagement**

The Cree Nation community of Eastmain located 130km east of the Project site is the nearest major community to the site. The Company has a strong working relationship with the Cree Nation of Eastmain and conducts regular and meaningful engagement and consultation with the Cree Nation.

On 18 March 2019, a Preliminary Development Agreement ("**PDA**") was signed with the Cree Nation of Eastmain, Grand Council of the Cree and Cree Nation Government. The PDA will be replaced by an Impact Benefit Agreement ("**IBA**") before construction is initiated.

Further engagement with the Cree Nation Government and stakeholders, including the communities of Waskaganish and Waswanipi, continue in relation to project updates.

The project will create approximately 250 full-time positions in the Eeyou Istchee/James Bay region.

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## EXECUTION STRATEGY

James Bay expects to commence construction in Q3 CY2022 with commissioning expected in the first quarter of CY24. To achieve these milestones, key focus areas for CY22 include:

- Further engineering activities to finalise design, equipment and plant configurations;
- Procurement for equipment, temporary installations and key contracts;
- Development of sustaining initiatives for local stakeholders;
- Progression of the ESIA, IBA and regulatory approvals.

CY22 and CY23 will see completed detailed design, development of construction work packages, procurement of long lead items, pre-mining of the starter pit and construction and pre-commissioning of the plant. Additional off-site and non-process infrastructure activities will also be established during this period.

Funding is expected to be provided through one or more of the following:

- existing corporate cash;
- existing or new corporate debt or project finance facilities;
- cash flow from operations;
- strategic offtake partner(s).

For the Execution Phase, the Company will implement the project delivery strategy described below:

- All the procurement and contracting activities will be managed directly by the Project team;
- The Company will implement an integrated team approach for construction management to carry out the Project`s construction activities;
- An Owner's Integrated Team organization will be put in place combining Company employees, main consultants and contractors to perform all technical / operational functions in-house and manage the required contractors to build the Project facilities.

In this approach, the contractors will be involved as early as possible with the detailed engineering and constructability development.

Downstream studies continue, examining options regarding the value adding conversion of James Bay's spodumene concentrate.

**ENDS**

This release was authorised by Mr Martin Perez de Solay, CEO and Managing Director of Allkem Limited.

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### Forward Looking Statements

This news release contains "forward-looking information" under the provisions of applicable securities legislation. Such forward-looking information is subject to various risks and uncertainties. Forward-looking information in this news release includes, but is not limited to, statements with respect to: (i) the economics and potential returns associated with the Project; (ii) the estimation of mineral reserves and mineral resources; (iii) the technical viability of the Project; (iv) the market and future price of spodumene concentrate and other commodities; (v) the ability to work cooperatively with other stakeholders, including local community groups and all levels of government; (vi) projected employment and other social benefits resulting from the Project; and (vii) the results of the Feasibility Study, including statements about future production, mining methods, future operating and capital costs, the projected IRR, NPV, construction timelines, permit timelines and production timelines for the Project. Forward-looking statements are based on current expectations and beliefs and, by their nature, are subject to a number of known and unknown risks and uncertainties that could cause the actual results, performances and achievements to differ materially from any expected future results, performances or achievements expressed or implied by such forward-looking statements, including but not limited to, the risk of further changes in government regulations, policies or legislation; the risks associated with the continued implementation of the merger between Orocobre Limited and Galaxy Resources Ltd, risks that further funding may be required, but unavailable, for the ongoing development of the Company's projects; fluctuations or decreases in commodity prices; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with development of the Company Projects; unexpected capital or operating cost increases; uncertainty of meeting anticipated program milestones at the Company's Projects; risks associated with investment in publicly listed companies, such as the Company; and risks associated with general economic conditions.

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**Competent Person Statement**

The Information in this announcement that relates to Mineral Resources is based on information compiled by Mr James Purchase, a Competent Person who is a Member of L'Ordre des Géologues du Québec, a Recognised Professional Organisation included in a list posted on the ASX website from time to time. Mr Purchase is a full-time employee of G Mining Services Inc. Mr Purchase 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". Mr Purchase consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to the December 2021 James Bay Ore Reserve is based on information compiled by Carl Michaud, P. Eng., a Competent Person who is a Member of L'Ordre des Ingénieurs du Québec, a Recognised Professional Organisation included in a list posted on the ASX website from time to time. Carl Michaud is a full-time employee of G Mining Services Inc. Carl Michaud 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'. Carl Michaud consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

Technical information relating to the Company's James Bay project contained in this release is derived from, and in some instances is an extract from, the technical report entitled "Feasibility Study – James Bay Lithium Project" (Technical Report) which has been reviewed and approved by James Purchase, P.Geo (G-Mining Services Inc.,) as it relates to geology, drilling, sampling, exploration, QA/QC and mineral resources: Joel Lacelle, P. Eng. (G-Mining Services Inc.); as it relates to site infrastructure and capital cost and operating cost estimate: Carl Michaud, P. Eng. (G-Mining Services Inc.); as it relates to mining methods, mining cost, financial modeling and economic analysis: Christopher Larder, Eng. (Wave International); as it relates to mineral processing and related infrastructures: Darrin Johnson, Ontario P. Eng. (Golder Associated Ltd.); as it relates to waste rock and tailings management related infrastructures: Joao Paulo Lutti, Eng. (Golder Associated Ltd); as it relates to water management infrastructures: Simon Latulippe Eng. (WSP Canada Inc.); as it relates to environmental and permitting in accordance with National Instrument 43-101 – Standards for Disclosure for Mineral Projects. The Technical Report will be filed within 45 days of this release and will be available for review under the Company's profile on SEDAR at www.sedar.com.

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# ANNEXURE A
# Feasibility Study
# Extract from Executive Summary

Allkem Limited ("**Allkem**") is proposing to develop the James Bay spodumene mine located in northern Québec, approximately 130 km east of James Bay and the Cree Nation of Eastmain community**.** The project is located adjacent to the Billy Diamond Highway (formerly the James Bay Highway) which provides access to key infrastructure in the region.

G Mining Services Inc. ("**GMS**") was engaged by the Company to produce the Feasibility Study and technical report in accordance with the Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects. GMS is a specialised mining consultancy based in Canada with wide experience in developing mineral projects.

On July 4, 2012, Allkem Limited, through its wholly owned subsidiaries, Galaxy Lithium (Canada) Inc. ("**Galaxy**") and Galaxy Lithium (Ontario) Inc., successfully completed a CAD 112 million merger with Lithium One Inc. ("Lithium One"), acquiring 100% of the Project as between the two subsidiaries. In October 2018, this holding was amended by Deed of Transfer to reflect the current holding of 49% Galaxy Lithium (Ontario) Inc. and 51% Galaxy Lithium (Canada) Inc.

Lithium One had previously entered three option agreements between March 2008 and June 2009; the status of these agreements remain unchanged since Galaxy's acquisition of the company. They are summarized as follows.

- On March 29, 2008, Lithium One entered into an option agreement with SDBJ and four arm's length Optioners to acquire a 100% interest in the Cyr Lithium Prospect. The terms of the agreement included a 2% net smelter return ("NSR") royalty, of which Lithium One can purchase half (or 1%) of this royalty for CAD 1.0M. Lithium One fully exercised its option to complete the acquisition of the Cyr Lithium Prospect on November 2, 2010 with a final payment of CAD$2.5 million and CAD$500,000 in common shares to SDBJ. The vendors retain a 2% NSR interest.
- On May 14, 2009, Lithium One entered into an option agreement with Jacques Frigon and Gérard Robert. The terms of the agreement included a 1.5% NSR on the Project. Lithium One will have the right to repurchase at any time one third (or 0.5%) of this royalty for a cash payment of CAD 500,000.
- On June 9, 2009, Lithium One entered into an agreement with Ressources d'Arianne Inc. The terms of the agreement included that the vendors retain a 1.5% NSR of which one third (0.5%) can be purchased by Lithium One for a cash payment of CAD 500,000.
- On March 18, 2019, a Preliminary Development Agreement ("PDA") was signed with the Cree Nation of Eastmain, Grand Council of the Cree and Cree Nation Government. This PDA is to be replaced by an Impact Benefit Agreement (IBA) before construction is initiated. The IBA is currently in negotiation between the relevant parties, reflecting the PDA requirements.

## GEOLOGY AND MINERALISATION

The Project is in the northeastern part of the Superior Province. It lies within the Lower Eastmain Group of the Eastmain greenstone belt, which consists predominantly of amphibolite grade mafic to felsic metavolcanic rocks, metasedimentary rocks and minor gabbroic intrusions.

The property is underlain by the Auclair Formation, consisting mainly of paragneisses of probable sedimentary origin which surround the pegmatite dikes to the northwest and southeast. Volcanic rocks of the Komo Formation occur to the north of the pegmatite dikes. The greenstone rocks are surrounded by Mesozonal to catazonal migmatite and gneiss. All rock units are Archean in age.

The pegmatites delineated on the property to date are oriented in a generally parallel direction to each other and are separated by barren host rock of sedimentary origin (metamorphosed to amphibolite facies). They form irregular dikes attaining up to 60 m in width and over 200 m in length. The pegmatites crosscut the regional foliation at a high angle, striking to the south-southwest and dipping moderately to the west-northwest.

Spodumene is the principal source of lithium found at the Project. It is found in lithium rich granitic pegmatites, with its occurrence associated with quartz, microcline, albite, muscovite, lepidolite, tourmaline and beryl.

## SAMPLING METHOD, APPROACH AND ANALYSIS

Galaxy used sampling procedures that meet generally accepted industry best practices. All sampling was conducted by appropriately qualified personnel under the direct supervision of appropriately qualified geologists. Assay samples were collected from half core sawed lengthwise on nominal 1.5 m intervals, honouring geological boundaries. In 2017, Galaxy collected 9,186 core samples from 157 boreholes totalling 33,339 m.

Samples were shipped to ALS Minerals in Val-d'Or for preparation and analyses. The laboratory is accredited ISO/IEC 17025:2005 by the Standards Council of Canada for various testing procedures.

Galaxy relied partly on the internal analytical quality control measures implemented at ALS Minerals. In addition, Galaxy implemented external analytical quality control measures consisting of using control samples (field blanks, in-house standards and field duplicates) inserted with batched samples submitted for certain holes in 2017. A comprehensive reanalysis of pulps was completed in 2021 to compare the 4-acid digestion with a sodium-peroxide fusion. The results were very similar and supported the previous analyses.

## DATA VERIFICATION

Galaxy implemented a series of industry standard routine verifications to ensure the collection of reliable exploration data. Documented exploration procedures exist to guide most exploration tasks to ensure the consistency and reliability of exploration data. In accordance with the NI 43-101 guidelines, James Purchase, P.Geo from GMS visited the Project during the period of June 14$^{th}$ to June 17$^{th}$, 2021. At the time of the visit no drilling was taking place. The purpose of the site visit was to ascertain the geological setting of the Project, witness the extent of exploration work carried out on the property and assess logistical aspects and other constraints relating to conducting exploration work in the area.

GMS conducted a series of routine verifications to ensure the reliability of the electronic data provided by Galaxy. These verifications include auditing the electronic data against original records. No significant errors were found in the electronic data provided by Galaxy. In addition, GMS validated several collar coordinates against the database value.

GMS reviewed the assay results for the external quality control samples from the 2017 drilling program. In general, the analytical quality control data supports that lithium grades can be reasonably reproduced, suggesting that the assay results reported by the primary assay laboratory are generally reliable for the purpose of resource estimation.

## MINERAL PROCESSING AND METALLURGICAL TESTING

SGS Canada Inc. ("SGS") and Nagrom were contracted in 2011 and 2018 respectively to undertake metallurgical testwork programs. SGS's scope was to undertake preliminary gravity separation test work on a single composite sample. Nagrom's testwork was divided into two phases, with the first phase evaluating several composite samples and the second phase devoted to the testing of composites samples expected to be processed in "Early Years" and "Mid/Later Years".

Flowsheets for the lithium beneficiation were developed in conjunction with the test work programs with the flowsheet evolving as more results were received and evaluated. The target was to produce a concentrate containing at least 6.0% $Li_2O$ and no more than 1% $Fe_2O_3$.

The results from the test work program at SGS indicated that the heavy liquid separation ("HLS") and dense medium separation ("DMS") test work results were similar with a 75% recovery of $Li_2O$ achieved at a concentrate grade of 6.5%. The rejected material via DMS floats was relatively low at 8% of total contained Lithia.

Phase 1 test work program at Nagrom examined multiple composites and used different crusher product screen sizes. The overall DMS recoveries achieved were 56.5% for the coarse DMS and 87.5% for the fines DMS, however the target concentrate grade of 6.0% $Li_2O$ was not reached.

Further test work was then undertaken with re-crushing to 4 millimetres (mm) on the coarse secondary DMS floats material resulting in an improvement of concentrate grade of 6.0% $Li_2O$. It was also noted that there was a large difference between the HLS and DMS results for the same samples. This led to a requirement for further investigation and a second phase of test work was instigated at Nagrom.

The following three composites were formed and tested in the Phase 2 Nagrom testing program representing plant feed materials during nominal early, mid, and later years of processing.

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A total DMS recovery of 85.8% at a Li2O grade of 6.0% was achieved for the Early Years composite. This result has been scaled using operating data from Mt Cattlin and other operations in Western Australia, therefore the predicted actual overall plant recovery and grade was reduced to 66.5% and 6.0% respectively.

The DMS results for the "Mid Years/Later Years" composites were lower than that achieved for the "Early Years" composite with a total DMS lithia recovery of 79.9% at an achieved grade of 5.9%. These results were also scaled using operating data from Mt Cattlin and other operations in Western Australia to 61.9% recovery at a product grade of 5.9% Li2O.

Modifying factors including particle size distribution, larger diameter cyclones used in the operating plant, dense medium contamination as well as operating data from other spodumene plants were used to determine performance on a full-scale plant. Recovery scale-up factors of 0.85 for Early Years and 0.82 for Mid and Late Years were used for James Bay.

The basis of design for the processing plant will be to produce 6.0% Li2O and engineering was performed on that basis. Process plant design always include a design allowance allowing to operate the process plant within a normal range of operation condition (higher or lower) based on market condition.

Following the recent changes in the lithium market, the modelled operating parameters of the James Bay processing plant has been flexed to produce a final product grade of 5.6% Li2O, as this will improve the economics of the project by improving the overall plant recovery to 72.5% and 68.3% for Early Years and Mid/Later Years respectively. These increased recovery targets have been estimated using Mt Cattlin LIMN modelling which provides grade-recovery curves based on head grade. The changes have been incorporated into the process design criteria (PDC) and mass balance. Plant design changes are anticipated to be minimal and will not materially affect the capital cost and operating cost estimates at this FEED Phase of the Project. Any potential design changes will be reviewed/addressed during the next Phase of the Project.

## CORE SAMPLES (PEGMATITE DEPOSIT)

A single ore sample weighing 14,690 kg grading 1.51% $Li_2O$ was sent to SGS for testing.

Some 400 kg of drill core samples were sent to Nagrom in 2017 for Phase 1 testing. The Li2O (lithia) assays of the tested composite samples ranged from 0.9% to 1.8% Li2O. Samples were composited based on pegmatite zone and grouped by depth (typically 0 – 100 m or 100 – 200 m). The samples represent an average composite.

A total of 4,643 kg of Early Years, 1,751 kg of Mid-Years and 1,760 kg of Later years samples were sent to Nagrom for testing.

## MINERAL RESOURCE ESTIMATE

The mineral resource model was prepared in 2017 and considered 102 core boreholes drilled by Lithium One during the period of 2008 to 2009, 53 channel samples collected by Lithium One in 2009 and 2010, and 157 core boreholes drilled by Galaxy in 2017. The resource estimation work has been certified by James Purchase P.Geo of G Mining Service (OGQ#2082), who is an independent Qualified Person as defined in NI 43-101 and a Competent Person for the purposes of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC). The effective date of the Mineral Resource Statement remains as November 23rd, 2017 but has been restated to the date of this Report. [1]

In the opinion of GMS, the resource evaluation reported herein is a reasonable representation of the global lithium oxide (Li2O) mineral resources found in the Project at the current level of sampling. The mineral resources have been estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines and the requirements of the JORC Code 2012 and are reported in accordance with the Canadian Securities Administrators' NI 43-101.

The database used to estimate the Project Mineral Resources has been certified by GMS. GMS is of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries for Li2O mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

[1] SRK Consulting (Canada) Inc. produced the James Bay Lithium Mine Project mineral resource as compliant with the requirements of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC). See the Australian Securities Exchange announcement entitled "James Bay Resource Update" dated December 4, 2017, available to view on www.allkem.co and www.asx.com.au.

Based on core drilling data, surface geology mapping and outcrop channel sampling provided by Galaxy, a three-dimensional model was completed for the main pegmatite dikes. The three-dimensional model honours drilling data. The bodies were modelled from logged pegmatite intervals, not $Li_2O$ grades, as implicitly derived intrusions, or vein contact surfaces in Leapfrog Geo software (version 4.0.1). The resulting geological model incorporates 18 pegmatite dikes. Sixteen pegmatite bodies were created as intrusion contact surfaces with a spheroidal interpolant, while two smaller pegmatites (550 and 850) were created with the vein modelling tool within the boundaries defined by hanging wall and footwall surfaces.

The overburden material was also modelled, consisting of glacial till, using the logged drill intervals and mapped outcrops. The three-dimensional model is clipped to a topography surface created from a Lidar survey provided by Galaxy.

Borehole assays were extracted for each of the 18 pegmatite dikes and examined for determining an appropriate composite length. Block model cell dimensions and anticipated open pit mining methods were also considered in the selection of the composite length. A modal composite length of 1.5 m was applied to all data. No capping was applied on the analytical composite data. Any unsampled intervals were assigned a value of 0% $Li_2O$. From the 8,624 samples extracted, 7,954 composites were generated honouring the pegmatite dike boundaries.

Criteria used in the selection of block size included the borehole spacing, composite assay length, the geometry of the modelled zones, and the anticipated open pit mining technique. In collaboration with Galaxy, GMS chose a block size of 10 x 3 x 10 m. Subcells, at 0.25 m resolution, were used to honour the geometry of the modelled pegmatite dikes. Subcells were assigned the same grade as the parent cell. The model is rotated on Z to be parallel to the general trend of the pegmatite dikes.

$Li_2O$ grade estimation used ordinary kriging and four passes informed by capped composites. The first pass was the most restrictive in terms of search radii and number of boreholes required. Successive passes usually populate areas with less dense drilling, using relaxed parameters with generally larger search radii and less data requirements.

For the first estimation pass, composites from at least two boreholes informing at least seven of the search ellipsoid octants were necessary to estimate a block. This pass also used restrictive octant search options, but only five octants were required. Because of their distinct geological identity, each pegmatite dike was estimated independently using a hard boundary.

Block model quantities and grade estimates for the Project were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014).

GMS is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by surface channel sampling and core drilling on sections spaced at 25 to 50 m. The 18 modelled intrusive pegmatite dikes were investigated by several boreholes, providing sampling to approximately 25 to 40 m spacing. Most pegmatite dike domains have been sampled by a sufficient number of boreholes to model the spatial variability of $Li_2O$. Accordingly, all block estimates within the conceptual pit shell have been classified as Indicated.

GMS considers that the $Li_2O$ mineralization in the Project is amenable to open pit extraction. In collaboration with Galaxy, GMS considered the pit optimization assumptions listed in Table 8 to select appropriate reporting assumptions. The conceptual open pit shells were not restricted by any existing surface infrastructure. Upon review, GMS considers that it is appropriate to report the James Bay mineral evaluation at a cut-off grade of 0.62% $Li_2O$. Insufficient material below the conceptual open pit shell is present to support an underground evaluation.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources will be converted into mineral reserve. GMS is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, and political or other relevant issues that may materially affect the mineral resources.

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*Table 8: Mineral Resource Statement, James Bay Lithium Project, effective on the date of this Report*

| Resource Category | Quantity (t) | Grade $Li_2O$ (%) |
|---|---|---|
| Indicated | 40,330,000 | 1.40 |

1. Mineral Resources are reported at a cut-off grade of 0.62% $Li_2O$ inside a conceptual pit shell optimized using spodumene concentrate price of USD 950 per tonne containing 6.0% $Li_2O$, metallurgical and process recovery of 70%, overall mining and processing costs of USD 55 per tonne milled and overall pit slope of 50 degrees.
2. All figures rounded to reflect the relative accuracy of the estimates.
3. Mineral resources are not mineral reserves and do not have demonstrated economic viability
4. The effective date of the mineral resource is November 27, 2017 and has been restated to the date of the report.
5. The independent and Competant Person for the MRE is Mr. James Purchase, P.Geo of G Mining Services Inc.

There are no adjacent properties that are considered relevant to this Technical Report.

## MINERAL RESERVES ESTIMATE

### Summary

The Mineral Reserve for the James Bay Project is estimated at 37.2 Mt, at an average grade of 1.3% $Li_2O$ for concentrate generation as depicted in Table 15. The Mineral Reserve ("MR") was prepared by GMS as of December 2021.

The mine design and MR have been completed to a level appropriate for feasibility studies. The MR stated herein is consistent with the CIM definitions and Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (**JORC**) requirements[1] and is suitable for public reporting. As such, the Mineral Reserves are based on Measured and Indicated Mineral Resources, and do not include any Inferred Mineral Resources. The Inferred Mineral Resources contained within the mine design are classified as waste with a grade of zero.

### Resource Block Model

GMS regularized the resource block model to 5 m x 3 m x 5 m. The density and the Li2O grade were calculated using a weighted mass average while the domain and class were estimated using the value with the largest volume.

The diluted block model was created by applying a 0.75 m thick skin to the minable resource body of the regularized block model. This skin size is considered appropriate considering the equipment size and the nature of the deposit. To do this, GMS uses a series of scripts that calculate dilution on a block-by-block basis by considering the density and grade of the surrounding blocks of a minable resources block. The diluted block model uses the same block size as the resource block model so to consider the mining dilution, the script calculates a new density and a new grade where the total tonnage and metal of the block model is conserved. The diluted block model results give a mining dilution of 7.8% at 0.30% $Li_2O$ for a dilution skin of 0.75 m.

### Pit Optimisation

Open pit optimization was conducted in GEOVIA Whittle™ to determine the optimal economic shape of the open pit to guide the pit design process. This task was undertaken using the Whittle software which is based on the Lerchs-Grossmann algorithm. The method works on a block model of the ore body, and progressively constructs lists of related blocks that should, or should not, be mined. The method uses the values of the blocks to define a pit outline that has the highest possible total economic value, subject to the required pit slopes defined as structure arcs in the software. This section describes all the parameters used to calculate block values in Whittle™.

For this Report, Measured and Indicated Mineral Resource blocks were considered for optimization purposes and for mineable resource calculations.



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### Pit Slope Geotechnical Assessment

Petram Mechanica was mandated in 2018 to produce a feasibility level geotechnical assessment study to support the mine designs. The conclusions of this study have been used as an input to the pit optimization and design process.

The pit area is composed mostly of the Metasediment (M1) geotechnical domain that appears to have consistent structural properties; therefore, the pit was not divided in sectors as it was concluded to be of limited to no value. It was found that no large-scale geological structures intersect the open pit mine design. Based on the stability analyses and precedent practice Petram Mechanica indicates that the recommended geometries are appropriate but strongly recommend the use of controlled blasting, proactive geotechnical monitoring and geomechanical analyses.

The slope configuration recommendations are presented in Table 9. Double benching will have to be done with pre-split and well controlled blasting practices are required. The pit slope profile is based on recommendations by Petram Mechanica as presented in Table 9. Petram Mechanica considered the overburden as a separate domain and suggest using a 2H:1V with 10m high/ wide benches.

***Table 9: James Bay Project Final Wall Geotechnical Recommendations***

| Slope Parameters | |
|---|---|
| Final Bench Height (m) | 20.0 |
| Bench Face Angle ($^o$) | 75 |
| Avg. Design Catch Bench Width (m) | 9 |
| Inter-ramp Angle ($^o$) | 54 |
| Overall Slope Angle ($^o$) | 48 |
| Geotechnical benches (m) | 20 |

Petram Mechanica recommends that a slope depressurization and dewatering program be implemented prior to mining and maintained through the life of the operation.

GMS recommends for future steps to re-evaluate the geotechnical parameters of the pit in consideration of the hydrogeological study performed by WSP in 2021. It was stated that about 1000m$^3$/d of water will be pumped out of the pit, which 18% to 29% would be from underground water infiltration. GMS recommends investigating the consequences on the pit design of the underground water infiltration.

### Mining Dilution and Ore Loss

A mining dilution assessment was made by evaluating the number of contacts for blocks above an economic cut-off grade (“CoG”). The block contacts are then used to estimate a dilution skin around ore blocks to estimate an expected dilution during mining. The dilution skin consists of 0.75 m of material in a north-south direction (across strike) and 0.75 m in an east-west direction (along strike). The dilution is therefore specific to the geometry of the ore body and the number of contacts between ore and waste.

For each mineralized block in the resource model diluted grades and a new density are calculated by taking into account the in-situ grades and in-situ density of the surrounding blocks.

Ore blocks that are surrounded by waste designated blocks are redefined as waste and categorized as ore loss. Waste blocks that are surrounded by ore blocks are tagged as ore and categorized in dilution.

### Pit Optimisation Parameters & Cut-Off Grade

A summary of the pit optimization parameters is presented in Table 10 for a nominal milling rate of 2Mt per year based on long-term metal price assumptions and an exchange rate of CAD/USD 1.33. A lithium concentrate grading 5.6% $Li_2O$ will be produced and sold as Spodumene. A concentrate transportation and insurance cost of 86.2 USD/t has been assumed.

The mining cost of mining blocks is fixed at 4.85 CAD/t ore to which a mining sustainable Capex of 0.5 CAD/t ore is added, for a total of 5.35 CAD/t ore.

Unit reference mining costs are used for a “reference mining block” usually located near the pit crest or surface and are incremented with depth which corresponds to the additional cycle time and thus hauling cost. The reference mining cost is estimated at 0.82 CAD/t with an incremental depth factor of 0.030/t per bench.

The overall slope angles utilized in Whittle are based on the Petram Mechanica inter-ramp angles recommended in the geotechnical assessment study with provisions for ramps and geotechnical berms. The overall slope angle in competent rock is 48 degrees based on a designed inter-ramp angle of 54 degrees.

The total ore-based cost is estimated at 33.17 CAD/t (24.94 USD/t) which includes processing, general and administration costs, royalties, assumed Impact Benefit Agreements fixed payments, sustaining capital, and a closure cost provision as summarised in Table 11. The diluted cut-off grade calculated is 0.62%.

***Table 10: James Bay Project Pit Optimization Parameters***

| **Process Recoveries** | UoM | **2021 Feasibility Results** |
|---|---|---|
| Processing Rate | kt/y | 2,000 |
| Mining Dilution | % | Included in BM |
| Mining Loss | % | Included in BM |
| Plant Head Grade | % $Li_2O$ | 1.30% |
| Process recovery | % | 70.1% |
| Concentrate Grade | % $Li_2O$ | 5.6% |
| Flotation Concentrate (Spodumene) | kt | 321 |
| Spodumene Sales | kt | - |
| Ratio of $Li_2O$ Tonnage to Conc. Tonnage | t $Li_2O$/t conc. | 12.52 |

***Table 11: Ore Based Consumption***

| Ore Based Cost Assumptions | UoM | |
|---|---|---|
| Plant | CAD/t | 13.23 |
| G&A cost | CAD/t | 13.86 |
| Royalties | CAD/t | 3.74 |
| Closure & reclamation | CAD/t | 1.27 |
| Sustaining capital | CAD/t | 1.07 |
| **Ore Based Cost** | **CAD/t** | **33.17** |
| **Commodity Prices** | | |
| Exchange Rate | CAD/USD | 1.33 |
| Spodumene | USD/t | 950 |
| Transport & Insurance | USD/t | 86.16 |
| | | |
| Cut-off Grade Calculated | % | 0.23% |
| Raised Cut-off Grade | % | 0.62% |

**Open Pit Optimisation Results**

The Whittle nested shell results are presented in using only the Measured and Indicated Mineral Resource. The nested shells are generated by using revenue factors to scale up and down from the base case selling price.

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*Table 12: Measured and Indicated Mineral Resource Whittle Shell Results for Combined Diluted Model @ 950 USD/t conc.*

| Pit Shell | Best Case Disc. @ 8% | Specified Disc. @ 8% | Worst Case Disc. @ 8% | Total Tonnage | Ore Tonnage | Strip Ratio | Waste Tonnage | $Li_2O$ Grade | Conc. | LOM |
|---|---|---|---|---|---|---|---|---|---|---|
| | (M CAD) | (M CAD) | (M CAD) | (kt) | (kt) | (W:O) | (kt) | % | (kt) | (Yr) |
| 8 | 1076 | 1067 | 1046 | 34585 | 15361 | 1.25 | 19224 | 1.4 | 2546 | 7.7 |
| 9 | 1163 | 1150 | 1123 | 42872 | 17446 | 1.46 | 25426 | 1.39 | 2882 | 8.7 |
| 10 | 1236 | 1219 | 1185 | 51670 | 19448 | 1.66 | 32221 | 1.39 | 3202 | 9.7 |
| 11 | 1303 | 1280 | 1239 | 61503 | 21525 | 1.86 | 39978 | 1.38 | 3529 | 10.8 |
| 12 | 1359 | 1329 | 1281 | 71662 | 23521 | 2.05 | 48141 | 1.38 | 3837 | 11.8 |
| 13 | 1419 | 1381 | 1326 | 84657 | 25957 | 2.26 | 58700 | 1.37 | 4208 | 13 |
| 14 | 1445 | 1402 | 1343 | 91769 | 27152 | 2.38 | 64618 | 1.36 | 4389 | 13.6 |
| 15 | 1467 | 1419 | 1353 | 98824 | 28348 | 2.49 | 70476 | 1.36 | 4563 | 14.2 |
| 16 | 1487 | 1433 | 1363 | 106711 | 29499 | 2.62 | 77213 | 1.35 | 4737 | 14.7 |
| 17 | 1506 | 1442 | 1367 | 114711 | 30627 | 2.75 | 84084 | 1.35 | 4904 | 15.3 |
| 18 | 1527 | 1454 | 1364 | 127150 | 32148 | 2.96 | 95002 | 1.35 | 5138 | 16.1 |
| 19 | 1541 | 1456 | 1351 | 136847 | 33241 | 3.12 | 103606 | 1.35 | 5308 | 16.6 |
| 20 | 1551 | 1452 | 1333 | 144870 | 34244 | 3.23 | 110625 | 1.34 | 5451 | 17.1 |
| 21 | 1557 | 1450 | 1322 | 151188 | 34963 | 3.32 | 116225 | 1.34 | 5554 | 17.5 |
| 22 | 1568 | 1442 | 1290 | 163690 | 36369 | 3.5 | 127321 | 1.33 | 5752 | 18.2 |
| 23 | 1572 | 1439 | 1275 | 168599 | 36868 | 3.57 | 131731 | 1.33 | 5824 | 18.4 |
| 24 | 1575 | 1437 | 1261 | 174258 | 37387 | 3.66 | 136871 | 1.33 | 5902 | 18.7 |
| 25 | 1576 | 1435 | 1256 | 176308 | 37576 | 3.69 | 138733 | 1.33 | 5929 | 18.8 |
| 26 | 1581 | 1427 | 1211 | 188336 | 38670 | 3.87 | 149666 | 1.33 | 6085 | 19.3 |
| 27 | 1582 | 1424 | 1199 | 191235 | 38937 | 3.91 | 152298 | 1.33 | 6122 | 19.5 |
| 28 | 1583 | 1422 | 1190 | 193640 | 39162 | 3.94 | 154478 | 1.32 | 6152 | 19.6 |
| 29 | 1583 | 1421 | 1185 | 195654 | 39344 | 3.97 | 156310 | 1.32 | 6176 | 19.7 |
| 30 | 1583 | 1419 | 1179 | 197089 | 39440 | 4.00 | 157649 | 1.32 | 6191 | 19.7 |
| 31 | 1583 | 1419 | 1178 | 197421 | 39466 | 4.00 | 157955 | 1.32 | 6194 | 19.7 |
| 32 | 1583 | 1418 | 1176 | 197844 | 39504 | 4.01 | 158340 | 1.32 | 6199 | 19.8 |
| 33 | 1584 | 1417 | 1173 | 198869 | 39580 | 4.02 | 159289 | 1.32 | 6209 | 19.8 |
| 34 | 1584 | 1417 | 1173 | 199304 | 39618 | 4.03 | 159686 | 1.32 | 6213 | 19.8 |
| 35 | 1584 | 1416 | 1169 | 200112 | 39679 | 4.04 | 160433 | 1.32 | 6221 | 19.8 |
| 36 | 1584 | 1416 | 1168 | 200493 | 39701 | 4.05 | 160792 | 1.32 | 6225 | 19.9 |
| 37 | 1584 | 1415 | 1166 | 200892 | 39727 | 4.06 | 161165 | 1.32 | 6228 | 19.9 |
| 38 | 1584 | 1415 | 1166 | 201055 | 39741 | 4.06 | 161314 | 1.32 | 6230 | 19.9 |
| 39 | 1584 | 1414 | 1164 | 201291 | 39752 | 4.06 | 161539 | 1.32 | 6232 | 19.9 |
| 40 | 1583 | 1413 | 1161 | 201912 | 39792 | 4.07 | 162119 | 1.32 | 6237 | 19.9 |
| 41 | 1583 | 1413 | 1161 | 201948 | 39795 | 4.07 | 162153 | 1.32 | 6237 | 19.9 |
| 42 | 1583 | 1413 | 1161 | 202036 | 39801 | 4.08 | 162235 | 1.32 | 6237 | 19.9 |
| 43 | 1583 | 1413 | 1161 | 202080 | 39804 | 4.08 | 162276 | 1.32 | 6238 | 19.9 |
| 44 | 1583 | 1413 | 1160 | 202183 | 39812 | 4.08 | 162371 | 1.32 | 6239 | 19.9 |
| 45 | 1583 | 1413 | 1160 | 202367 | 39822 | 4.08 | 162545 | 1.32 | 6240 | 19.9 |
| 46 | 1583 | 1413 | 1159 | 202521 | 39830 | 4.08 | 162691 | 1.32 | 6241 | 19.9 |
| 47 | 1583 | 1413 | 1159 | 202546 | 39832 | 4.08 | 162714 | 1.32 | 6241 | 19.9 |
| 48 | 1583 | 1412 | 1159 | 202598 | 39836 | 4.09 | 162762 | 1.32 | 6242 | 19.9 |
| 49 | 1583 | 1412 | 1159 | 202659 | 39839 | 4.09 | 162819 | 1.32 | 6242 | 19.9 |
| 50 | 1583 | 1412 | 1159 | 202678 | 39840 | 4.09 | 162838 | 1.32 | 6242 | 19.9 |

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Table 12 showcases all the different scenarios tested by Whittle and the shell selection is presented in Table 13. Pit shell 23 is selected as the desired final pit shell, corresponding to an 18.4-year LOM pit shell (Revenue Factor of 0.74).

This shell has a total tonnage of 168.4 Mt including 36.9 Mt of ore. This pit shell has a lower theorical operating cash flow than the pit shell 19, which itself has the maximum operating cash flow, but adds 4 years to the LOM. GMS is confident that pit shell 23 is appropriate to maximize the overall project value and assures an adequate LOM.

**Figure 5: Pit by Pit Graph M&I Resource**

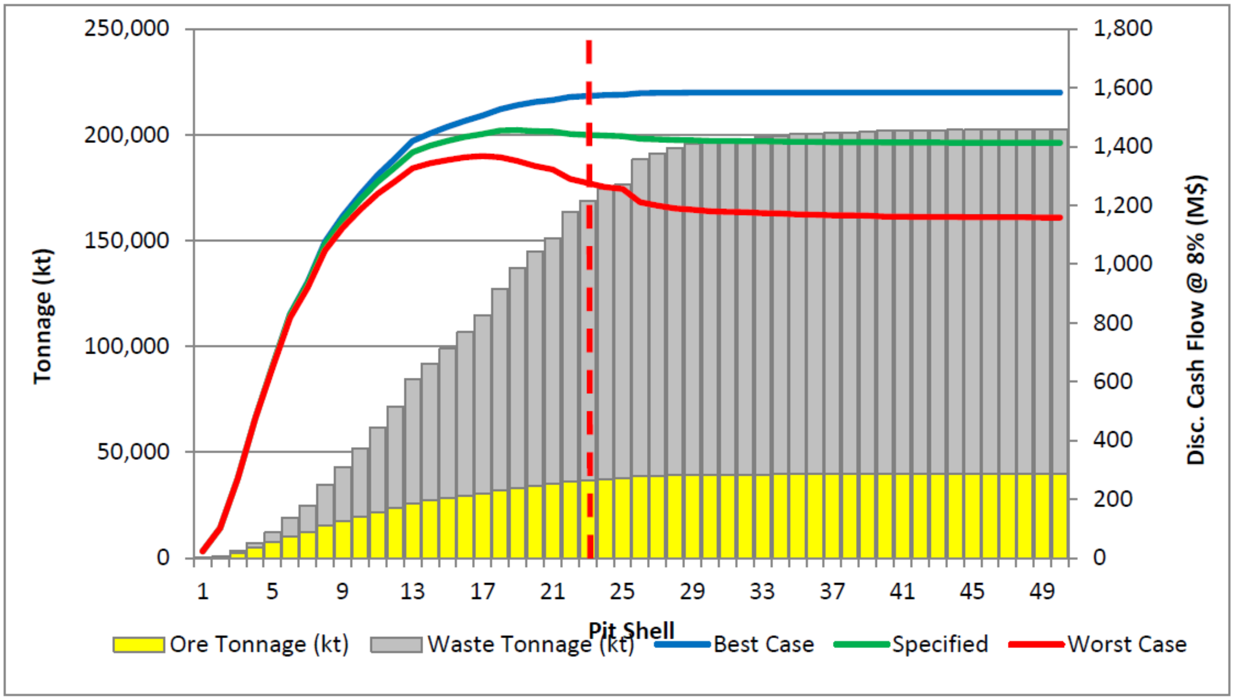


*Table 13: Measured and Indicated Mineral Resource Pit Shell Selection @ 950 USD/t conc.*

| Shell Selection | Selection |
|---|---|
| Shell Number | 23 |
| Shell RF | 0.78 |
| Shell Price | 741 |
| Total Tonnage (kt) | 168599 |
| Waste Tonnage (kt) | 131731 |
| Strip Ratio (W:O) | 3.5 |
| Ore Tonnage (kt) | 36,868 |
| $Li_2O$ Grade (%) | 1.33 |
| Conc. Tonnage (kt) | 5,824 |
| Discounted Cash Flow @ 8 % (M$) | 1,280 |
| LOM (Yr) | 18.4 |

**Mineral Reserve Statement**

The Mineral Reserve and stripping estimates are based on the final pit design presented in the previous section. The Proven and Probable Mineral Reserves are inclusive of mining dilution and ore loss. The total ore tonnage before dilution and ore loss is estimated at 36.9 Mt at an average grade of 1.33 % $Li_2O$. Isolated ore blocks are treated as an ore loss and represent 5 kt, less than 0.1% of total ore tonnage. The dilution envelope around the remaining ore blocks



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results in a dilution tonnage of 1.1 Mt. The dilution tonnage represents 3.0% of the ore tonnage before dilution and the dilution grade is estimated from the block model and corresponds to the average grade of the dilution skin.

Table 14 presents a Resource to Reserve reconciliation.

***Table 14: Resource to Reserve Reconciliation***

| Mineral Reserves by Category | Tonnage (kt) | % $Li_2O$ |
|---|---|---|
| Ore before ore loss and dilution | 36,118 | 1.33 |
| Less: Ore loss (isolated blocks) | 5.0 | 0.73 |
| Ore before mining dilution | 36,113 | 1.33 |
| Add: Mining dilution | 1,094 | 0.38 |
| Proven & Probable Mineral Reserve | 37,207 | 1.30 |

***Table 15: James Bay Project Open Pit Mineral Reserve (December, 2021)***

| | Crude ore tonnage<br>k dmt | Crude Lithium grade<br>% $Li_2O$ |
|---|---|---|
| Proven | 0 | 0 |
| Probable | 37,207 | 1.30 |
| **Proven + Probable** | 37,207 | 1.30 |

Notes:

1. CIM Definitions Standards on Mineral Resource and Reserves (2014) and JORC (2012) requirements were followed.
2. Effective date of the estimate is December, 2021.
3. Mineral Reserves are estimated using the following long-term metal prices ($Li_2O$ Conc USD 950/t $Li_2O$ at 6.0% $Li_2O$) and an exchange rate of CAD$/USD 1.33.;
4. A minimum mining width of 5 m was used.;
5. Cut-off grade of 0.62% $Li_2O$.
6. Bulk density of ore is variable, outlined in the geological block model and average 2.7 g/t.
7. The average strip ratio is 3.54:1.;
8. The average mining dilution factor is 3.0% at 0.38% $Li_2O$
9. Numbers may not add due to rounding.

## MINING METHODS

The pegmatite deposit will be mined by conventional open pit methods. All material will require drilling and blasting and will be removed using mining excavators and haul trucks.

The slope angles used in the pit design were based on results of geotechnical investigation and lab results that were analysed as listed below:

- Nominal face height of 20 m (double benched 10 m-high benches)
- Bench face angle of 75° for in-situ rock material
- Berm widths of 9 m
- Additional geotechnical berms of 20 m were included in the central portions of JB2 of the design in sections of the pit walls with elevation differences greater than 120 m between ramps

The preliminary pit design extends approximately 2 km NW/SE along strike of the pegmatite mineralization and has an average width of 500 m. The design is divided into three areas, labelled JB1, JB2 and JB3. JB2 is the deepest portion of the pit at 260 m. Depth for JB1 is at 175 m and for JB3 at approximately 170 m.

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The open pit is planned to be sequenced and scheduled utilizing phased pits to enable a smooth transition of lower waste stripping during the initial years of production with a gradual increase later in the mine life. Overburden and topsoil material will be trucked to an overburden stockpile. Waste rock will be hauled to the multiple Waste Rock Tailings Storage Facilities ("WRTSF") and ROM Feed ore will be hauled to the ROM pad, located to the northeast of the pit.

Grade control will be applied for maintaining feed quality. Grade control is proposed to be accomplished through blast pattern design, mining direction method and in-field sample collection.

Explosive products and blasting accessories will be provided by a third-party contractor who will be responsible for the storage on site and delivery of these products to the drill hole. This contractor will also supply a magazine for blasting caps and accessories and a separate magazine for boosters and packaged explosive products.

The project basis of design is for 2.0 million tonnes (Mt) of concentrator feed annually. The life-of-mine ("LOM") plan has been scheduled using annual increments. The LOM schedule covers approximately 18.75 years of production with 131.7 Mt of waste rock, 5.6 Mt of overburden, and 37.2 Mt of ROM Feed ore for a total of 168.9 Mt of material mined. The average strip ratio for the LOM plan is 3.54:1. Figure 6 states the mine plan tonnages by year, based on the preliminary mine plan / LOM schedule.


***Figure 6: Mine Production Schedule***
***Source : GMS, 2021***

Year-2 and Year-1 (pre-production period) will have no mill operation and all ore generated will be stockpiled and rehandled during production years. Pre-production years prioritise waste to use as construction material and to ease access to ore in production years, thus reducing the rehandle required.

Site preparation including logging, clearing, grubbing and peat/topsoil removal will occur during the construction phase (Year -2 and Year -1), in advance of the concentrator commissioning. These activities will be required within the footprint of the pit and will be conducted by a third-party contractor. These activities will take place in the pre-production period with adequate areas cleared to support five years of production.

Surface mining equipment requirements are based on mining 10 m benches. Conventional excavator and truck fleet are sized to meet the planned tonnage requirements to feed the concentrator at 2 Mtpa. The same haul trucks will transport tailings from the plant to the proposed WRSTF as well as transporting waste rock directly to the WRTSF. The number of excavators, haul trucks and drills are based on the annual production values from the current mining schedule. The primary equipment fleet estimate includes:



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- One 6.3-m3 bucket, diesel hydraulic excavator (backhoe configuration)
- One 8.3-m3 bucket, electric hydraulic shovel (front-shovel configuration)
- Up to nine 100-t rigid frame haul trucks
- Three 10.7-m3 front end loader (FEL)
- Two drills (4-8”), one for production and one for pre-splitting and production support

Secondary equipment will be used to support the production fleet. The secondary equipment fleet includes:

- Three track dozers
- One-wheel dozers
- Two (14 ft) graders
- One water (34 kl) truck/sanding truck is required on each shift

The personnel requirements are based on two Fly-In, Fly-Out (“FIFO”) rosters: four days on / three days off for the senior staff positions and local community members, and 7 days on / 7 days off rotation for the rest of the workforce. Each on-site crew will be assigned to work night or day shift. The mine workforce peaks at 146 individuals in Year 4.

## RECOVERY METHODS

The process design is based on the concentration of spodumene mineralization from the mine to a beneficiated concentrate of 6.0% $Li_2O$. The selected process is similar to that currently being utilized at Allkem’s Mt. Cattlin mining operation in Australia which comprises a similar flowsheet based on crushing and DMS.

Metallurgical modelling predicts an improvement in recovery of approximately 6% and increase in final product tonnage of approximately 18% at a lower 5.6% $Li_2O$ final product grade. This equates to approximately 12% increase in revenue at the current spodumene concentrate prices.

Test work recoveries were used to develop actual plant operating recoveries and indicate that a recovery of 66.5% in the early years and 61.9% in later operating years is achievable for a spodumene concentrate containing 6.0% $Li_2O$. LIMN modelling from Mt Cattlin production data indicates that a recovery of 71.2% in the early years and 66.5% in later operating years is achievable for a spodumene concentrate containing 5.6% $Li_2O$.

The processing plant includes the following sub processes:

- Three stage crushing circuit and crushed ore stockpile
- DMS plant
- Tailings dewatering / filtration and loading system for hauling to WRTSF
- Water, air and ancillary services
- Spodumene concentrate stockpile and dispatch system

### Crushing Circuit

The ROM ore will be fed to the three-stage crushing plant consisting of a primary jaw crusher, a secondary crusher and tertiary crusher. These crushers combined with two double-deck sizing screens will produce a crushed product which will be all less than 15 mm to be stored in a covered crushed ore stockpile.

### DMS Plant

The crushed ore is reclaimed from the stockpile and fed in a controlled manner by vibrating feeders and a reclaim conveyor to the DMS plant. Ahead of the DMS is a sizing screen, with a top deck of 4 mm and a 1 mm bottom deck which removes the fines (- 1 mm) material which is sent to the tails dewatering section for disposal.

Prior to feeding the DMS cyclones, the crushed ore will be mixed with a ferrosilicon (FeSi) slurry, which acts as a densifying medium to enhance the gravity separation of the spodumene from lower density gangue minerals.

DMS cyclone overflow streams are dewatered over a series of screens from where the FeSi is also recovered for re-use in the process. These dewatered waste products are then conveyed to the tailings loadout facility.



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The DMS cyclone underflow, containing the high SG minerals, are also dewatered over a series of screens from where the FeSi is recovered in the screen undersize and a magnetic recovery process. The primary underflow product is screened to produce a coarse (-15 +4 mm) and fine (-4 +1 mm) product.

The primary coarse underflow product will report to the Secondary Coarse DMS cyclones where the process is repeated in order to achieve the target concentrate grade. After processing, the concentrate is conveyed to the product stockpile from where it is transported to the customers.

For recovery enhancement, the oversize from the secondary floats screen is re-crushed using a rolls crusher. After removal of the minus 1 mm material, which is sent to the tailing treatment area, the oversize is processed through the re-crush DMS plant which follows the same process as the primary and secondary DMS circuits.

The plant also incorporates a secondary fine DMS for re-processing of the Primary fine underflow product from the primary DMS circuit. This material is processed through a fine DMS cyclone with underflow screened and oversize reporting to the final product. Screening recovers the FeSi slurry for re-use and the effluent from the FeSi magnetic separators sent to the tailing's treatment area.

The following are the utilities and consumables that are required to operate the processing plant:

- Process make-up water
- Potable water
- Electrical power
- Consumables as required for operation of the crushing and DMS plants
- Ferrosilicon, lime, and flocculant

## PROJECT INFRASTRUCTURE

The following infrastructure facilities are planned for the Project:

- 69 kV Main-substation
- Administrative and laboratory building
- Operations camp
- Workshop and reagent buildings
- Propane storage and distribution facility
- Diesel storage and distribution facility
- Truck-shop including a Wash-bay
- Cold dome warehouse for the storage of critical parts
- Water treatment plant (effluent)
- Potable water treatment plant
- Sewage treatment plant

Operational personnel will be housed on-site. Planned permanent accommodations will be sufficiently sized and will include back-up power generation, potable water storage and distribution and waste-water treatment and disposal. Raw water from suitably selected wells will be sourced and treated for potable water requirements.

The process plant and supporting infrastructure will be powered by Hydro-Québec's 69 kV overhead distribution system. The 69 kV distribution line is relayed through Hydro-Québec's Muskeg substation and ultimately fed by the Némiscau substation located roughly 100 km southwest of the Project site. An overhead distribution line extension will be built to the plant substation from the 69 kV line (L-614) located 10km south of the Project site. The 69 kV power supply is limited by a capacity of 8 MVA due to the sensitivity of the network and distance from the supplying substation.

All essential power loads will be supported with emergency power supply available from the emergency diesel generators, in the event of loss of grid power supply.



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A propane storage, unloading and distribution facility will be installed to supply propane gas to the camp and kitchen. This facility will supply propane for the accommodation facilities' heating and cooking requirements.

Suitable diesel storage, unloading and distribution facilities will be installed to provide uninterrupted diesel fuel supply to the operations and maintenance fleet and equipment.

Additionally, communication facilities will need to be developed as the site is not currently serviced by cellular data or fibre optics.

The site infrastructure will include:

- ROM pad and stockpile
- Crushed Ore stockpile
- Four Waste Rock and Tailings Storage Facilities ("WRTSFs")
- Overburden and Peat Storage Area ("OPSF")
- Two Water Management Ponds ("WMPs") and a Plant Water Management Pond
- Contact water ditches and non-contact diversion water ditches
- Fine and coarse tailing warehouse building
- Spodumene concentrate warehouse facility
- Emulsion & explosive storage and distribution facility

The tailings warehouse and spodumene concentrate warehouse will be located adjacent to the process plant.

All storage areas were selected to minimize their environmental impact. A surface drainage network will be built to divert non-contact water from the ROM pad and stockpile, WRTSF, OPSF stockpiles and process plant. A similar drainage network will be used to manage the surface water run-off (contact) for all disturbed land. A pumping system with heat traced pipe will be installed.

All on-site work and locations of the various infrastructure and buildings will comply with the required minimal setback distance of 60 m from the high-water line of any lake or watercourse.

## OFF-SITE INFRASTRUCTURE

### Air Transport

The Eastmain airport (130 km from site) will be used to transport workers from southern Québec. Galaxy is in discussions with Transport Canada with respect to regulations and permits for operating equipment upgrades/installations, such as de-icing equipment and a fuelling station. Instrumentation upgrades and procedures need upgrading to mitigate flight cancellations due to bad weather.

### Ownership/governance

The airport is the property of Transport Canada, which offers advantages in terms of quality and maintenance with respect to new installations.

Transport Canada has awarded a five-year contract to the Cree Nation of Eastmain Council for management of the airport. The land on which the airport is built is designated as a Category I ancestral land by the James Bay and Northern Québec Agreement, which reserves the land to the exclusive use and benefit of the Cree population. Negotiations with the community will be required prior to installing new infrastructure or any airport upgrades.

Galaxy continues discussions with Transport Canada and the Crees to analyses the requirements for any necessary upgrades.

### Flight operations

The gravel apron tarmac covering approximately 3,700 m$^2$ can accommodate, with some limitations, two Dash 8–100 aircraft at a time, allowing James Bay flights to transit concurrently with commercial flights. The runway is 1,067 m long and 30 m wide and can readily accommodate Dash 8–100 type aircraft (37 passengers). Under certain circumstances, it can accept Dash 8–300 types (52 passengers), provided several conditions are met and evaluated before the flight, including weather, temperature, runway conditions and the loaded weight of the aircraft.

The following additional support equipment will be required: de-icing equipment, ground power units and fuelling facilities (to avoid a refuelling stop).

## MARKET STUDIES AND CONTRACTS

**Market Studies**

Lithium is the lightest and least dense solid element in the periodic table with a standard atomic weight of

6.94. In its metallic form, lithium is a soft silvery-grey metal, with good heat and electric conductivity. Although being the least reactive of the alkali metals, lithium reacts readily with air, burning with a white flame at temperatures above 200oC and at room temperature forming a red-purple coating of lithium nitride. In water, metallic lithium reacts to form lithium hydroxide and hydrogen. As a result of its reactive properties, lithium does not occur naturally in its pure elemental metallic form, instead occurring within minerals and salts.

Lithium demand has historically been driven by macro-economic growth, but the increasing use of rechargeable batteries in electrified vehicles over the last several years has been the key driver of global demand. Global demand between 2015 and 2020 has almost doubled, reaching 388.4 kt LCE with a CAGR of 14.0% over the period. Adding to this growth, in 2021 global lithium demand is expected to increase by 33.8% to 519.6 kt LCE as demand for rechargeable batteries grows further. Over the next decade, global demand for lithium is expected to grow at a rate of 19.2% CAGR and exceed 3,000 ktpa by 2031.

The growing battery market is expected to create opportunities for lithium producers. From the mining side, battery and auto makers will require long-term offtake agreements or other type of partnership to guarantee price stability over the outlook period. Although the greatest opportunity is expected to occur in the automotive supply chain, the ESS industry will require additional supply of more than 150 ktpa LCE by 2031, whilst Motive applications are expected to see lithium demand increase >450% over the same period.

Between 2015 and 2019, growth in production from hard rock lithium mines averaged 39% pa, reaching a peak of 264 ktpa in 2019 before decreasing to 213 ktpa in 2020 as a result of curtailed production in a challenging environment. This continued growth up to 2019 was underpinned by expansions and commissioning of new capacity at operations in Australia, predominantly in 2017 when Australian production displayed a y-on-y increase of 300%. The sharp increase in 2017 mine output represented the reaction to increasing lithium compound and spodumene concentrate prices during 2016, which continued into 2017. The commissioning of the Mt. Cattlin mine operated by Galaxy Resources and ramp-up of the Mt. Marion mine commissioned by Neometals (now operated by a Ganfeng/Mineral Resources JV) in 2017 was accentuated by a ramp-up in production at Talison Lithium's Greenbushes. Including lithium produced from brines, global lithium production in 2021 is estimated at 476 kt LCE, up 19% from 2020.

A recovery in mined lithium supply in 2021 driven by strong demand is expected to exceed pre-COVID-19 levels and increase to over 265 ktpa. Mine production is derived from operations targeting predominantly spodumene and lepidolite mineralization. In 2020, recovery of lithium from brines accounted for 47% of global supply, followed by spodumene concentrates with 44%. With the exception of 2020, spodumene concentrate production has displayed strong growth since 2015 and is forecast to continue on a rapid growth trajectory. By 2031, lithium supply from spodumene concentrates is expected to reach nearly 600 ktpa.

The lithium mine (hard rock) supply balance is forecast to enter a deficit 2021 and 2022 which is currently driving high prices. With additional capacity being brought on in 2023 and 2024 it is forecast that the market will return to a small surplus before entering a long-term structural deficit, which is forecast to grow during the forecast period. Roskill forecasts the supply deficit in 2021 to be around 85 kt LCE which will ease to 21 kt LCE in 2022 before entering a few years with a small surplus reaching 43 kt in 2024. The limited investments in both exploration and capacity during the industry downturn is likely to manifest itself from 2025 where increases in supply will be insufficient to keep up with the strong growth in demand for mineral feedstock by mineral converters. The deficit is expected to propagate from 2026, requiring significant additional supply to enter the market.

On a refined product basis, the market is forecast to show a surplus of 66 kt LCE in 2021 as new capacity enters the market. The quality of the product is, however, uncertain due to the commissioning of new projects. The fast-increasing demand will see the surplus decreasing to 18 kt LCE in 2022 before entering a continued deficit. Beyond 2024 a growing structural deficit is expected to form reaching 1.5Mt LCE by 2031, requiring significant additional supply from both existing and new producers.

Global lithium demand is forecast for exponential growth over the next decade, primarily driven its use in lithium-ion battery applications. Roskill forecasts global lithium demand to grow at 19.21% CAGR over the next decade from 520



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ktpa in 2021 to over 3,000 ktpa by 2031. Growth in lithium demand will outpace rising supply by 2025 when the mine market balance is expected to record a deficit. Without new supply from development of new projects, the supply deficit will continue to grow driving lithium prices upwards.

Spodumene concentrate will continue to feature as a key feedstock in the global lithium supply chain and increasing tonnages will be required to meet future demand for refined lithium. Increasing supply in the short term will put pressure on spodumene prices but as demand catches up, prices will recover. Contract prices for chemical-grade spodumene concentrate are expected to range between USD 754/t and USD 1,121/t between 2022 and 2031.

### Contracts

As of the date of this Technical Report, Allkem has no existing commercial offtake agreements in place for the sale of lithium concentrate, lithium carbonate or lithium hydroxide (collectively, "lithium products"), from the James Bay Project.

Allkem is having discussions with potential offtake customers for James Bay. In line with the Project execution schedule, these discussions are expected to advance to negotiations throughout the course of the project.

Allkem has been an active participant in lithium markets since 2012 and has been a seller in both lithium concentrate ("concentrate" or "spodumene") and lithium chemicals markets due to past and present operations.

At present, Allkem is the sole owner and operator of the Mt Cattlin spodumene mine and concentration project. Allkem produces lithium concentrate which is sold to various customers in Asia.

Allkem currently has no contract in place in support of project execution and construction, nor for operations. Discussion have commenced to sign a power supply contract with Hydro-Québec. Discussions with Transport Canada regarding the Eastmain Airport upgrade are ongoing.

## ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

### Regulations and Permitting

The Project is subject to a federal and provincial environmental assessment, as required under Section 13 of the Canadian Environmental Assessment Act ("CEAA") (2012) (S.C. 2012, c. 19, s. 52) and (par. 16[b]) of the Regulations Designating Physical Activities (SOR/2012-147). The Project is also subjected to Section 153 of the Environment Quality Act ("EQA"), (CQLR, c.Q-2), which automatically subjects all mining developments in the JBNQA territory to the assessment and review procedure contemplated in Sections 153 to 167 of the EQA.

As the Project is located within the territory governed by the JBNQA, it is also subjected to Chapter 22 of the JBNQA. According to the JBNQA, the Project is located on Category III land where mining rights belong to the provincial government.

An Environmental and Social Impact Assessment ("ESIA"), complying with the Impact Assessment Agency of Canada ("IAAC") guidelines and the directive of Québec's Ministère de l'Environnement et de la Lutte contre les changements climatiques ("MELCC"), for this Project was submitted to the authorities in October 2018. As part of the technical review of the ESIA, information requests were received from federal and provincial authorities. Answers were provided by Galaxy for most of these requests. Given the changes to the Project design, a second version of the ESIA was prepared to reflect these changes, and which also considered all information requests received from the authorities as part of the ESIA process. This ESIA (version 2) was submitted in July 2021.

Following ESIA approval from regulators, construction and operation permits will be required under the Fisheries Act and any other federal regulations, when required. The Metal and Diamonds Mining Effluent Regulations ("MDMER") pursuant to Section 36 of the Fisheries Act, and administered by Environment Canada, will apply at the operation phase.

After approval of the ESIA by the provincial authorities, the Project will be subjected to Section 22 of the Environmental Quality Act ("EQA"), pursuant to which an authorization is required for activities that may result in a change in the quality of the environment. Each activity such as mining, milling and maintenance may be subjected to different authorizations. The applications to the MELCC will be accompanied by sufficiently comprehensive studies to address the requirements of Directive 019 applicable to the Mining Industry.

Other permits, authorizations, approvals and leases from the MERN, the MELCC, Québec Building Agency (Régie du Bâtiment) and potentially the Ministry of Forests, Wildlife and Parks (Ministère des Forêts, de la Faune et des Parcs ("MFFP"), for various Project components or activities on the Project site may be required.



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On March 18, 2019, a Preliminary Development Agreement ("PDA") was signed with the Cree Nation of Eastmain, Grand Council of the Cree and Cree Nation Government. The PDA will be replaced by an Impact Benefit Agreement ("IBA") before construction is initiated.

**Environmental Baseline Studies**

In 2017, various studies were undertaken to update a former data collection from 2011 and to obtain the necessary baseline information required to assess the Project's impacts as part of the ESIA. Some complementary studies were also performed in 2020 and 2021

**Physical Environment**

The surface soils are mainly till (sandy) and clay deposits. Based on the information collected as part of the Project, the rock underneath corresponds to a Class II fractured aquifer, meaning the aquifer is a potential source of drinking water. The till at the surface in the proposed mine location is mainly comprised of silty and gravelly sand with traces of clay. It is moderately permeable and has a low aquifer potential.

The Project is located inside the Eastmain River watershed. Three lakes are located near the proposed mine site: Asini Kasachipet Lake, Kapisikama Lake and Asiyan Akwakwatipusich Lake. Six watercourses (CE1 to CE6) are found within the limits of the local study area. The CE1, CE2 and CE6 watercourses flow west toward the Miskimatao River and then onto the Eastmain River, whereas C3, C4 and C5 flow east, but also join up to the Eastmain River.

The waterbodies are natural and are not affected by pollution originating from human activity. Onsite measurements show that pH and dissolved oxygen values are low, and that surface water is very acidic given the nature of the soil and the type of vegetation. Although a few trace metals are higher than the recommended criteria in the surface water samples, they are within the natural range for Canadian surface water. Among the groundwater and sediment samples analyzed, certain exceeded the water quality / sediment criteria for different metals, but as for surface water, they are still within the range of natural conditions.

**Biological Environment**

The proposed Project is located at the northeastern boundary of the Abitibi and James Bay Lowlands natural province. Across the study area (3,689 ha), terrestrial environments cover 18.5% (683 ha), wetlands 74.4% (2,744 ha), hydric environments (including lakes and streams) 5.9% (218 ha), and anthropogenic environments 1.2% (44 ha).

Recent forest fires (in 2005, 2009 and 2013) have significantly affected the plant group structure and composition in the Project area to the point where the short- and long-term development of existing stands could be disrupted. The repeated disturbances could significantly limit their regeneration. Evidence of fires are still visible.

Wetlands and lands around the proposed mine location have a very limited potential for comprising threatened or vulnerable plant species. No special status plant species were identified in the Project area.

Seven fish species were identified in the lakes and streams of the Project study area, namely the spined stickleback, brook char, white sucker, yellow perch, lake chub, troutperch, and northern pike. None of these species are listed on the federal Species at Risk Act or likely to be vulnerable or endangered in Québec.

An aerial survey conducted in 2018 confirmed the presence of moose based on the observation of individuals mostly in residual coniferous islands near rivers. Black bear and grey wolf were not identified during the aerial survey. However, signs (feces and traces) of black bears were seen during opportunistic observations in the study area. Both bears and wolves have been seen by Cree and Truck Stop Km 381 personnel in recent years.

Caribou benefit from dual protection, at both the federal and provincial levels. Areas providing the highest probability of occurrences are generally residual mature forest islands formed after forest fires. The habitat available within a 10 km range of the center of the projected mine is very fragmented. Therefore, due to its high disturbance rate, the study area offers poor habitat conditions for woodland caribou. Also, an aerial survey of 40 km x 40 km around the proposed mine site did not allow for the identification of any caribou.

The presence of 53 bird species was confirmed, most of them are common and largely distributed across habitats at these latitudes in the Province of Québec. Of these species, two species at risk were surveyed: the common nighthawk and the rusty blackbird. Availability of their habitats is not at risk in the surrounding environment near the study area or across Québec.



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Surveys conducted in 2017 allowed for the identification of the big brown bat, hoary bat, and another chiroptera of the Myotis genus. The scarcity of mature forest due to forest fires may be the cause of chiroptera's weak presence in the study area. Habitat of higher quality for species at risk are found in the surrounding environment of the study area.

**Geochemical Characterisation**

Several geochemical characterisations were completed on waste rock, tailings, ore and soils that will be manipulated and stored during the operations at mine. The main objectives of these studies are to assess the material's acid generating potential, its metal leaching potential and to determine the possibility of using waste rock as construction material. Results from kinetic testing on waste rock, tailings, ore show that they are non-potentially acid generating. Some metal leaching, exceeding the provincial resurgence in surface waters ("RES") criteria, was observed during the first weeks of testing. For the waste rock, exceedances were observed until week 14. For the tailings, all metals complied with RES criteria after week 14, except copper that was still punctually over the RES criterion up to week 28.

**Social Environment**

The Project is located 130 km east of the Cree Nation of Eastmain community. The planned mining infrastructure is located on the RE2 trapline. The study area, located in the trapline's eastern section, covers nearly half of its area. It is bordered to the north by the Eastmain River. The Eastmain River segment and a sector with larger lakes in the south are the most frequented by the Cree community. Activities are also carried out along the Billy Diamond Highway due to its accessibility. The main activities carried out on the traplines are hunting, fishing and trapping of fur-bearing animals. These activities take place year-round, according to specific practices, timetables and migration patterns.

A total of 27 locations with prehistoric archaeological potential were identified within the proposed Project area. These sites are those that are most likely to contain remains attesting to a human presence from prehistoric time up to the twentieth century. An archaeologic inventory, including 322 holes covering a total of 80.5 m2, was conducted in 2021 in the footprint of the planned infrastructures to ensure the projected construction work does not result in the destruction of archaeological and ethnological remains. No archaeological evidence was revealed during the visual inspection and inventory.

Based on field observations, sectoral studies and photographs taken from various viewpoints, the following five landscape units were identified as characterizing the landscape of the proposed Project area:

- Valley
- Plain
- Plateau
- Powerline
- Road

**Socio-economic**

The structure of the Cree economy is mainly driven by tertiary sector activities, particularly in band councils and school and health institutions. Traditional Cree hunting, fishing, and trapping activities are still present and important in the Eeyou Istchee James Bay communities. In 2016, nearly two-thirds of the experienced labour force[4] in the Eeyou Istchee James Bay communities worked in the following categories: business, finance and administration; sales and services; and education, law and social, community and government services. Occupations in the trade, transportation and machinery categories accounted for 13.7% of the experienced labour force. Occupations in the primary sector accounted for 4.6% of the Eeyou Istchee James Bay workforce in 2016 versus 1.6% in Québec. The processing, manufacturing and utilities sectors accounted for only 0.85% of the experienced labour force in 2016, compared to 4.9% for Québec.

**Surveillance and Monitoring Program**

Galaxy will implement an environmental surveillance program and perform environmental surveillance to ensure compliance with laws, regulations and other environmental considerations set out during the development of the Project and the impact assessment.

The environmental surveillance program will be included in the site construction procedures and will include the following:

- List of elements that require environmental surveillance
- All measures to be applied and means planned for protecting the environment
- Detailed monitoring program activities
- Intervention mechanisms in the event of non-compliance with legal and environmental requirements
- Commitments with regards to filing monitoring reports and distributing environmental surveillance results to the affected population
- Intention to hire Cree Environmental Monitors (subject to training and availability)
- Environmental monitoring will be implemented for the operation phase for sensitive environmental components and for those that are likely to be most affected by the Project, such as monitoring of:
- Surface water and sediment quality
- Groundwater (flow, level, and quality)
- Fish population and benthic invertebrate community
- Air quality and ambient noise
- Vegetation along the periphery of infrastructure (including the introduction and spreading of invasive alien plant species)
- Wildlife (including beaver population and beaver dams, bird population, species at risk)
- Socioeconomic environment (including socioeconomic conditions, land, and resource use for traditional purposes as well as quality of life and well-being)

**Closure and Rehabilitation**

A preliminary closure plan was prepared and included as an appendix to the ESIA (version 2). An official Closure plan will be developed and submitted to the MERN in accordance with article 232.1 of the Mining Act for approval prior to the filing of the mining lease application.

The protection, redevelopment and restoration measures planned as part of the Closure plan aim to close the mine site to satisfactory condition, namely:

- Eliminate unacceptable risks to health and ensure the safety of persons
- Limit the production and spread of substances liable to harm the receiving environment and, in the long term, aim to eliminate all forms of maintenance and follow-up
- Restore the site to a visually acceptable condition for the community
- Restore the infrastructure site to a state compatible with future use.

A follow-up study of the physical stability of the structures, chemical quality of drainage and return of vegetation will be carried out over a minimum period of five years after the cessation of mining and transformation activities.

**Public Consultation**

Galaxy established a stakeholder consultation and engagement process which allows Galaxy to gather concerns, views, and expectations of local communities, as well as to provide mitigation strategies where possible.

As presented in the ESIA, Galaxy has committed to developing sustainable relationships with stakeholders and to maximize the social and economic benefits of the Project while minimizing environmental impacts. In 2018, Galaxy



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hosted "open houses" to share project information, organized individual and group sessions with stakeholders, posted updates on the James Bay Project website and maintains direct contact with community members on a regular basis, including the RE2 tallyman. The relationship and exchanges between Galaxy and stakeholders will be maintained throughout the life of the Project.

From 2011-2012, and from 2017-2020, in-person meetings were held with stakeholders from various spheres: municipal administration, economic development, land use and planning, and natural resources, as well as the communities of Eastmain, Waskaganish and Waswanipi. Stakeholders expressed their support for mining development in their region, and also importance of establishing conditions to ensure and maximize socioeconomic spin-offs for the region, as well as environmental protection. Galaxy continues to respond to questions, expectations and recommendations voiced by stakeholders. Galaxy's responses are detailed in the ESIA consultation log.

Communications with stakeholders, including indigenous members, have been maintained since the submittal of the ESIA in October 2018. Preoccupations and expectations expressed are addressed in the ESIA (version 2).

**Consultation of Indigenous Peoples**

Suspended in 2012 for economic reasons, the Project was relaunched in 2017. Eighteen meetings were organized with the Eastmain Cree community to inform and consult stakeholders concerned by this mining development. The meetings were primarily aimed at socioeconomic stakeholders, RE2, VC33 and VC35 tallymen, the users of the territory of these traplines, and members of the Eastmain community. Stakeholders' concerns, expectations and recommendations regarding the Project were recorded throughout the consultation process. It was determined during the exchanges held in 2011–2012 and in 2019, with the RE1 trapline tallyman that they did not feel concerned about the Project.

Galaxy conducted interviews in Eastmain with stakeholders from various sectors relating to the economy, the socio-cultural world, health, hunting, fishing, trapping, the environment, and from focus groups. The stakeholders expressed their support for mining development in their region but many also stressed the importance of environmental protection and maximizing socioeconomic spin-offs for the region.

Two formal public consultation presentations were made to the community to present the Project and the results of the ESIA, as well to initiate a transparent and respectful dialogue. Individual meetings, by telephone or face-to-face, were held with socio-economic stakeholders from the community. Focus group discussions were held. Group interviews with the trapline tallymen and their families were organized during the ESIA consultations.

Maps of the traplines were provided to participants so that they could mark their activities and camps, drinking water supplies, transportation links and enhancement and preservation sectors. A group interview was conducted during the consultation of the Cree Board of Health and Social Services of James Bay ("CBHSSJB"), and of the Cree School Board ("CSB"). All stakeholders from these two bodies were invited to the meeting, allowing canvassing of the views of each area of intervention within these organizations.

The purpose of all these meetings was to address participants' knowledge of the Project; the known effects of other mining projects on the EIJB territory; participants' views on the proposed project; its potential positive and negative impacts; its potential cumulative impacts; mitigation measures to consider; and any other expectations, concerns or queries members of the community wished to voice. Minutes were drafted following each of the meetings and sent for approval to the stakeholders.

## CAPITAL AND OPERATING COSTS

The capital expenditures ("CAPEX") for Project construction, including processing, mine equipment purchases, infrastructures and other direct and indirect costs is estimated and summarized in

. The total initial Project CAPEX including a CAD 26M contingency and CAD 20 million cost escalation reserve is estimated at CAD 380 million. Deferred and Sustaining CAPEX is required during operations for additional equipment purchases, a truck shop bay addition, and mine civil works.

Operating costs include mining, processing, general and administrative services, mining, processing and concentrate transportation. The LOM operating cost summary is presented in Table 17.

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*Table 16: Summary of LOM Capital Costs*

| Capital Expenditures | CAD M |
|---|---|
| **Initial CAPEX (CAD M)** | |
| 100 - Infrastructure | 37.93 |
| 200 - Power and Electrical | 41.81 |
| 300 - Water | 33.62 |
| 400 - Surface Operations | 7.82 |
| 500 - Mining Open Pit | 36.01 |
| 600 - Process Plant | 87.62 |
| **Subtotal Direct Costs** | **244.81** |
| 700 - Construction Indirects | 49.12 |
| 800 - General Services | 56.71 |
| 900 - Pre-production, Start-up, Commissioning | 1.66 |
| 990 - Contingency | 27.8 |
| 990 – Cost escalation reserve | 20.0 |
| **Subtotal Indirect Costs** | **135.29** |
| **Total Initial CAPEX** | **380.1** |
| **Deferred and Sustaining CAPEX (CAD M)** | |
| 100 - Infrastructure | 18.6 |
| 500 - Mining | 107.23 |
| **Total Deferred and Sustaining CAPEX** | **125.82** |

*Table 17: Summary of LOM Operating Costs*

| Item | Total Cost (CAD M) | Unit Cost CAD/ t Tonnes Processed |
|---|---|---|
| Mining | 818.97 | 22.01 |
| Processing | 493.25 | 13.23 |
| General and Administration | 534.27 | 14.36 |
| Concentrate Transportation | 706.34 | 18.98 |
| **Total** | **2,551.93** | **68.59** |

## ECONOMIC ANALYSIS

An economic analysis was developed using the discounted cash flow method and was based on the data and assumptions for capital and operating costs detailed in this report for mining, processing, and associated infrastructure. An exchange rate of CAD 1.33 per USD was used to convert some items of the cost estimates from USD. No provision was made for inflation and the base currency was considered on a constant 2021 CAD basis. The evaluation was undertaken on a 100% equity basis. Exploration costs are deemed outside of the project and any additional project study costs have not been included in the analysis. Base case scenario results are detailed in Table 18.

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*Table 18: Base Case Scenario Results*

| Production Summary (Life-of-Mine) | |
|---|---|
| Tonnage Mined (Mt) | 168,896 |
| Ore Processed (Mt) | 37,207 |
| Strip Ratio (W:O) | 3.54 |
| Spodumene Concentrate at 5.6% (k dmt) (after transport losses 0.5%) | 6,026 |
| **Metal** | |
| Head Grade (% Li2O) | 1.30 |
| Contained Metal ('000 t Li) | 225 |
| Recovered Metal ('000 t Li) | 158 |
| **Cash Flow Summary** | **(M CAD)** |
| Gross Revenue | 8043 |
| Mining Costs (incl. rehandle) | -819 |
| Processing Costs | -492 |
| Concentrate Transportation | -706 |
| G&A Costs | -534 |
| Royalty Costs | -121 |
| **Total Operating Costs** | **-2,673** |
| Operating Cash Flow | 5,370 |
| Initial CAPEX | -380 |
| Operation Cost during Construction | -26 |
| Sustaining CAPEX | -126 |
| **Total CAPEX** | **-532** |
| Salvage Value | 0 |
| Closure Costs | -47.4 |
| Interest and Financing Expenses | 0 |
| Taxes (mining, prov. & fed.) | -1,924 |
| **Before-Tax Results** | **(M CAD)** |
| Before-Tax Undiscounted Cash Flow | 4,789 |
| NPV 8% Before-Tax | 1,893 |
| Project Before-Tax Payback Period | 2.4 |
| Project Before-Tax IRR | 45.8% |
| **After-Tax Results** | **(M CAD)** |
| After-Tax Undiscounted Cash Flow | 2,865 |
| NPV 8% After-Tax | 1,097 |
| Project After-Tax Payback Period | 2.9 |
| Project After-Tax IRR | 35.2% |

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# ANNEXURE B

## JORC 2012 TABLE 1 DISCLOSURE

### Section 1: Sampling Techniques and Data

| APPENDIX 1 JORC Code, 2012 Edition – JAMES BAY LITHIUM PROJECT SAMPLING AND DATA | | |
|---|---|---|
| ***Sampling techniques*** | • *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralization that are Material to the Public Report.*<br>• *In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverized to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralization types (e.g. submarine nodules) may warrant disclosure of detailed information.* | **2008/2009 Exploration Drilling – Lithium One**<br>Lithium One (subsequently acquired by Galaxy Lithium Canada Inc.) drilled a total of 102 diamond drill holes for 13,487m on a pattern ranging between 50m and 60m spacing. Drill holes were for the most part inclined towards the south-east to intersect the spodumene mineralization perpendicular. Drillhole diameter was NQ.<br>The 2008/2009 drill-hole collars were initially surveyed by handheld GPS, and subsequently resurveyed using RTK by Galaxy Lithium Canada in 2017. A total of 84 out of 102 drill holes were located and resurveyed by RTK.<br>Downhole survey methods for the 2008 drilling are unknown, however downhole surveying was conducted at 3m intervals, likely with a gyroscope.<br>**2009/2010 Channel Sampling – Lithium One**<br>Surface outcrops of pegmatite were channel sampled in 2009 and 2010 using a dual-blade diamond saw to ensure consistent widths during cutting. A total of 53 channel samples were collected for a combined length of 810m. Channel lengths ranged from 2m to 41m, and sampling was conducted on 1.5m intervals. Channel samples were terminated at the contact with surrounding lithologies.<br>**2017 Resource Definition Drilling – Galaxy Lithium Canada Inc.**<br>Galaxy Lithium Canada Inc. conducted a program of infill .and extensional diamond drilling in 2017 with 157 holes drilled for a total meterage of 33,339m. Drillhole diameter was NQ. All drill hole collars were resurveyed using a RTK method. Downhole surveys were recorded every 3m using a multi-shot camera.<br>**2017/2018 Geotech and Metallurgical Drilling – Galaxy Lithium Canada Inc.**<br>Galaxy Lithium Canada Inc. conducted a program of diamond drilling in 2017 and 2018, with 102 holes drilled for a total meterage of 10,900m. Drillhole diameter was HQ for metallurgical drill holes, and NQ for the remaining Geotech holes. |
| ***Drilling techniques*** | • *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).* | **Diamond Drilling**:<br>All drilling campaigns were conducted by Chibougamou Drilling using either NQ or HQ drilling diameters. Triple tubing was not necessary as the rock is fresh and highly competent starting from the base of the overburden. Recoveries were excellent (> 95%)<br>Exploration and resource definition drillholes vary in depth from 50m to 300m, with the occasional deep exploration hole up to 500m depth.<br>Metallurgical drillholes are HQ diameter and vary in depth between 10m and 105m. |



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| | | Geotech and sterilisation drillholes are NQ diameter and are generally 70m to 120m deep. |
| ***Logging*** | • *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | All drill core processing was performed at the Relais Routier Km 381 Truck Stop, with logging and sampling conducted by employees and contractors of GLCI. Lithology, structure, mineralization, sample number, and location were recorded by the geologists in a GEOTIC log database and stored on an external hard drive for additional security.<br>Drill core was stored in wooden core boxes and delivered to the core logging facility at the camp twice daily by the drill contractor. The drill core was first aligned and measured for core recovery by a technician, followed by RQD measurements. Due to the hardness of the pegmatite units, the recovery of the drill core was generally very good, averaging over 95%. The core was then logged, and sampling intervals were defined by the geologist. Before sampling, the core was photographed using a digital camera and core boxes were marked with box number, hole ID, and aluminium tags indicating "from" and "to" measurements. All drill holes were logged in full. |
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximize representativity of the sample*<br>• *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | **2008/2009 Drilling and Channel Sampling**<br>Standardized core sampling protocols were used by Lithium One. Initially, during the 2008 drilling program, core was sampled at 2.5-m intervals, and subsequently at 1.5-m intervals. A selective sampling procedure was used based on lithological contacts, where the maximum (and most common) sample interval was 1.5 m. Shorter samples were collected to define geological domains. Channel samples were also sampled at 1.5-m intervals.<br>Sample intervals were marked by appropriately qualified geologists. Two sample tags were placed at the beginning of each sample interval, while a third copy remained in the sample booklet along with the associated "from" and "to" information recorded by the geologist.<br>A geo-technician was responsible for core cutting and for preparing the samples for dispatch to the preparation laboratory – Table Jamésienne de Concertation Minière in Chibougamau. Assay samples were collected on half core sawed lengthwise using a diamond saw; the remaining half was replaced in the core box for future reference. Quarter core duplicates were collected frequently.<br>**2017/2018 Drilling**<br>Sample intervals were determined based on observations of the lithology and mineralization and were marked and tagged by the geologist. The typical sample length was 1.5 m but varied according to lithological contacts between the mineralized pegmatite and the country rock. In general, one country rock sample was collected from each side of the contact with the pegmatite.<br>The drill core was split lengthwise; one half was placed in a plastic bag with a sample tag, and the other half was left in the core box with a second sample tag for reference. The third sample tag was archived on site. The samples were then catalogued and placed in rice bags for shipping. Sample shipment forms were prepared on site, with one copy inserted with the shipment and a second copy given to the carrier. One copy was kept for reference.<br>The samples were transported regularly by contractors' truck directly to the ALS Canada Ltd – ALS Minerals laboratory in Val-d'Or, Québec. At the ALS facility, the sample shipment was verified, and a confirmation of receipt of shipment and content was sent digitally to the Galaxy project manager.<br>The sample sizes (half-core, NQ diameter) are appropriate for the style, thickness and consistency of the mineralization at the James Bay Lithium Project. |
| ***Quality of assay data*** | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and* | **2008 - 2010 Assaying** |



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| ***and laboratory tests*** | *whether the technique is considered partial or total.*<br>• *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*<br>• *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.* | Samples were shipped from site in secure containers to Table Jamésienne de Concertation Minière in Chibougamau for preparation. The protocol for sample preparation involved weighing, drying, crushing, splitting and pulverizing.<br>The pulverized pegmatite core samples were shipped from the Table Jamésienne de Concertation Minière to the COREM Research Laboratory (COREM) in Québec City. COREM was accredited ISO/IEC 17025:2005 by the Standards Council of Canada for various testing procedures on April 30, 2009. The scope of accreditation did not include the specific testing procedures used by COREM to assay lithium (method code B23).<br>Lithium One also utilized SGS Mineral Services Lakefield Laboratory (SGS) as an umpire laboratory to monitor the reliability of assaying results delivered by the primary laboratory COREM.<br>At COREM, prepared samples were assayed using three-acid digestion (nitric acid, hydrofluoric acid, perchloric acid) in boiling water. The dissolved sample was analysed by atomic absorption (AA) spectrometry. At SGS, check samples were assayed by sodium peroxide fusion and atomic absorption spectroscopy. At ALS Minerals, prepared samples were assayed using four-acid digestion (perchloric acid, hydrofluoric acid, nitric acid and hydrochloric acid) with ICP-AES finish. Although a four-acid digest is considered a near-total digest, common practice for the analysis of pegmatite material is a sodium-peroxide fusion. Significant verification test work has been undertaken and has demonstrated that the acid digest method is robust, and no bias has been observed when compared to the sodium-peroxide fusion check assays.<br>Samples from 2008 – 2010 represent roughly 29% of the total meterage of the drilling on the project.<br>**2008 - 2010 QAQC**<br>Lithium One relied partly on the internal analytical quality control measures implemented by COREM laboratory. Additionally, Lithium One implemented external analytical quality control measures consisting of using control samples (field blanks, in house standards and field duplicates) inserted with sample batches submitted for assaying in 2009 and 2010, and coarse reject duplicate samples in 2008. Standards were non-certified and were custom made from a bulk sample of the outcropping pegmatite material.<br>Field duplicates were generated from quarter core samples and inserted every 40 samples.<br>Total insertion rate for QAQC in 2008 – 2010 was 4.2%, with an additional 2.6% when including umpire assays.<br>Although the insertion rate of QAQC in 2008 – 2010 was below industry standards, subsequent check assays have shown that the assay results are valid. Also, the results from the limited QAQC undertaken at the time of drilling show no issues.<br>**2017/2018 Assaying**<br>Samples were shipped to ALS Minerals in Val-d'Or for preparation and analyses. The laboratory is accredited ISO/IEC 17025:2005 by the Standards Council of Canada for various testing procedures, however, the scope of accreditation does not include the specific testing procedure used to assay lithium.<br>Sample preparation involved the sample material being weighed and crushed to 70% passing 2 mm. The ground material was then pulverized to 90% passing 75 microns before being analysed.<br>At ALS Minerals, prepared samples were assayed for mineralization grade lithium by specialized four-acid digestion and inductively coupled plasma – atomic emission spectrometry (ICP-AES) finish (method code Li-OG63). An approximately 0.4-gr sample was first digested with perchloric, hydrofluoric, and nitric acid until dry. The residue was subsequently re-digested in concentrated hydrochloric acid, cooled and topped up to volume. Finally, the samples were analysed for lithium by ICP-AES. The method used has a lower detection limit of 0.01% lithium and an upper limit of 10% lithium.<br>Samples from 2017 represent roughly 71% of the total meterage of the drilling on the project.<br>**2017/2018 QAQC** |



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|---|---|---|
| | | GLCI relied partly on the internal analytical quality control measures implemented by the ALS Minerals laboratory, which involved routine pulp duplicate analyses. GLCI also implemented external analytical quality control measures including the insertion of control samples (blanks, in house standards and field duplicates) with sample batches submitted for assaying at ALS Minerals in 2017. In 2017, a number of pulp samples were also re-submitted to the SGS laboratory in Lakefield, Ontario for umpire check assays. In 2020, additional pulp samples were resubmitted to Nagrom Analytical, Perth.<br>Duplicate samples were inserted into each sample series at a rate of one in every 20 samples. Duplicates corresponded to a quarter core from the sample left behind as reference.<br>Total insertion rate for QAQC in 2017 was 12.4%, with an additional 16.6% when including umpire assays.<br>The rate of insertion of QAQC samples in 2017 was much improved compared to 2008 – 2010 period. No biases were identified, and a minor failure was identified in the low-grade standard which was investigated and no contamination was identified. |
| ***Verification of sampling and assaying*** | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | **Data Verification by the Competent Person**<br>James Purchase, P. Geo, of G Mining Services, Inc., independent consultant to GLCI and Competent Person for the James Bay Mineral Resource has visually assessed and verified significant intersections of drill core and has witnessed outcropping spodumene mineralization in the field. A selection of drill collar coordinates was validated by handheld GPS, and core and sample storage and security facilities were inspected. Channel sample outcrops were also inspected and found to be of high-quality. The site visit was conducted in June 2021.<br>The Competent person inspected 10% of the original assay certificates against the database, and no data entry errors were identified. Resurveying by RTK methods of the original collar collars by Galaxy has confirmed the original values, with > 97% of collar coordinates showing a difference of <5m.<br>Data collection and entry procedures were also reviewed.<br>After the acquisition of the James Bay Lithium Project by Galaxy Lithium Canada Inc., significant verification work has been undertaken including reanalysis of pulps to compare the 4-acid digestion method against sodium-peroxide fusion. In addition, a modernization of the drilling database has occurred in 2021.<br>No clear and consistent biases were defined during investigations into QAQC performances, and any failures were duly investigated and found to be minor. |

## Section 2: Reporting of Exploration Results

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Mineral tenement and land tenure status*** | • *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* | The Project comprises 54 contiguous mining titles located in NTS map sheet 33C/03, covering an area of approximately 2,164 hectares. The boundaries of the claims have not been legally surveyed. All claims are in good standing, with expiry dates between June 12, 2022, and June 20, 2023. The claims are "CDC"-type claims which gives its holder the exclusive right to search for mineral substances. No Mining Lease has been issued for the project. The claims are registered under Galaxy Lithium (Canada) inc. ("GLCI") and Galaxy Lithium (Ontario) Inc. ("GLOI"). |

| | | |
|---|---|---|
| | • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.* | |
| **Exploration done by other parties** | • *Acknowledgment and appraisal of exploration by other parties.* | Prospector Jean Cyr first discovered spodumene pegmatite outcrops on the property in 1964. The property was staked in 1966 by Mr. Cyr and was optioned by the SDBJ in 1974, who after conducting some exploration on the property, returned it to Mr. Cyr on June 10, 1986.<br>Commencing in 1974, SDBJ conducted an exploration program that consisted of geological mapping, systematic sampling and diamond drilling of the mineralized outcrops to evaluate the lithium potential of the property. The mapping defined an area of 45,000 square metres of outcropping spodumene dykes.<br>The Centre de Recherches Minérales du Québec conducted concentration tests and chemical analyses in 1975. A composite sample of the spodumene pegmatite grading 1.7% Li2O yielded a spodumene concentrate grading an average of 6.2% Li2O with a recovery factor of 71%.<br>LithiumOne acquired the claims in 2007 and embarked on an exploration campaign designed to produce a maiden mineral resource on the property. In 2012, Galaxy Resource Limited merged with Lithium One. |
| ***Geology*** | • *Deposit type, geological setting and style of mineralization.* | The Project is in the north-eastern part of the Superior Province. It lies within the Lower Eastmain Group of the Eastmain greenstone belt, which consists predominantly of amphibolite grade mafic to felsic metavolcanic rocks, metasedimentary rocks and minor gabbroic intrusions.<br>The property is underlain by the Auclair Formation, consisting mainly of paragneisses of probable sedimentary origin which surround the pegmatite dykes to the northwest and southeast. Volcanic rocks of the Komo Formation occur to the north of the pegmatite dykes. The greenstone rocks are surrounded by Mesozonal to catazonal migmatite and gneiss. All rock units are Archean in age.<br>The pegmatites delineated on the property to date are oriented in a generally parallel direction to each other and are separated by barren host rock of sedimentary origin (metamorphosed to amphibolite facies). They form irregular dykes attaining up to 60 m in width and over 200 m in length. The pegmatites crosscut the regional foliation at a high angle, striking to the south-southwest and dipping moderately to the west-northwest.<br>Spodumene is the principal source of lithium found at the Project. Spodumene is a relatively rare pyroxene that is composed of lithium (8.03% $Li_2O$), aluminium (27.40% $Al_2O_3$), and silica (64.57% $SiO_2$). It is found in lithium rich granitic pegmatites, with its occurrence associated with quartz, microcline, albite, muscovite, lepidolite, tourmaline and beryl.<br>An example of spodumene mineralisation in drill core at James Bay is shown below: |

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| | | |
|---|---|---|
| | |  |
| ***Drill hole Information*** | • *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*<br>○ *easting and northing of the drill hole collar*<br>○ *elevation or RL (Reduced Level – elevation above sea level in meters) of the drill hole collar*<br>○ *dip and azimuth of the hole*<br>○ *down hole length and interception depth*<br>○ *hole length.* | **Drill Collars and Surveys**<br>All drill collars and hole directions are presented in Schedule 1. Most holes are inclined 45 – 70 degrees towards the southeast to intersect pegmatites in near true widths. |
| ***Data aggregation methods*** | • *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | **Cutting**<br>No cutting (capping) of high-grades is necessary for mineralisation at James Bay for the reporting of Exploration Results.<br>No metal equivalent values are used.<br>A cut-off of 0.62% Li2O is considered reasonable for open-pit extraction of mineralisation. |
| ***Relationship between mineralization widths and intercept lengths*** | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.* | All drilling at James Bay has been drilled in a direction to intersect mineralisation perpendicular.<br>No new drilling is being disclosed in this release. |



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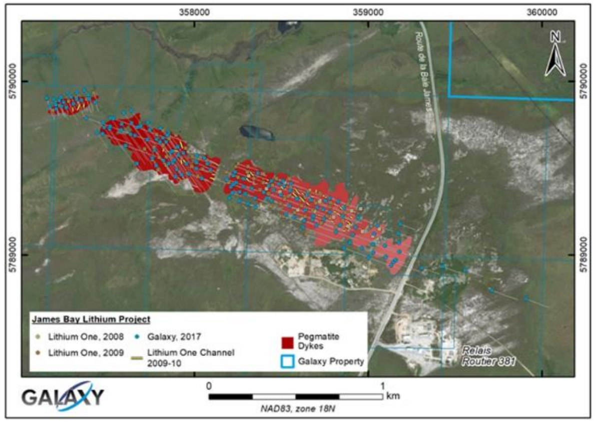
<table>
<tr><td></td><td><ul><li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg ‘down hole length, true width not known’).</li></ul></td><td></td></tr>
<tr><td>Diagrams</td><td><ul><li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li></ul></td><td>See below for an image that shows all drilling used for the 2017 Mineral Resource Estimate. No new drilling is being disclosed in this release.<br>

</td></tr>
<tr><td>Balanced reporting</td><td><ul><li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li></ul></td><td>No new drilling is being disclosed in this release.</td></tr>
<tr><td>Other substantive exploration data</td><td><ul><li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk sample– size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li></ul></td><td>No bulk sampling has been conducted on the project in recent times.<br>An IP survey undertake in 2020 and 2021 has uncovered potential extensions of mineralization to the east of the property.<br>Re-assaying of pulps using sodium-peroxide fusion methods has not returned economic concentrations of tantalum, tin or other elements of economic importance apart from Lithium.</td></tr>
<tr><td>Further work</td><td><ul><li>The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).</li></ul></td><td>Further drilling is required inside the proposed feasibility pit design to delineate pegmatite dykes to the north.</td></tr>
</table>

| | | |
|---|---|---|
| | • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | |

## Section 3: Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section).

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Database integrity** | • *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*<br>• *Data validation procedures used.* | The mineral resource estimate declared in this announcement was originally undertaken by SRK Consulting Ltd. and released on December 4th, 2017. For the 2021 feasibility study, Mr. James Purchase, P.Geo of G Mining Services Inc. is acting as Competent Person (CP) for this mineral resource estimate, which remains unchanged since December 2017. No significant new information is available to update the mineral resource, and it remains current.<br>Database for the Mineral Resource<br>The database used in the mineral resource was supplied by Galaxy in csv format and was subsequently checked by the CP for errors.<br>10% of the original assay certificates were checked against the database and no errors were identified. In addition, drill collar coordinates used in the MRE were checked against resurveyed coordinates, and all fell within acceptable limits of error. Downhole surveys were also checked, and although some erratic deviations were noted, they we not deemed to be material.<br>Since the MRE, Galaxy has migrated the database to DataShed software, and the structure of the database has been formalised and validated. This new database has been checked against the database used in the MRE and no significant issues were identified. |
| **Site visits** | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | The reporting CP is Mr. James Purchase P.Geo, a member of the L'Ordre des Géologues du Québec, which in turn is a Recognized Professional Organization under the JORC Code. Mr. Purchase completed a site visit to the James Bay Project in June 2021.<br>The site visit did not take place during active drilling activities. All aspects that could materially impact the integrity of the data informing the mineral resource estimate were reviewed, including outcrop inspection, channel sampling areas, core logging, sampling methods and security and database management. Mr. Purchase examined core from numerous boreholes from each of the major dykes and confirmed that the logging information in the drilling database accurately reflects the actual core; the lithology contacts honour the original core logs and spodumene was observed in drill core in sufficient amounts to justify the concentrations observed in analyses. |
| **Geological interpretation** | • *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*<br>• *Nature of the data used and of any assumptions made.*<br>• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*<br>• *The use of geology in guiding and controlling Mineral* | The lithological logging of pegmatite was used to build the interpretation of pegmatite dykes in Leapfrog Geo™ modelling software. The dykes were modelled implicitly and separated into numerous swarms with a principal orientation dipping 50 degrees to the south-east. No internal dilution zones were modelled.<br>The confidence in the geological interpretation of the dykes in high, and continuity of widths and grade have been demonstrated between drill sections and in outcrop. Some folding has been observed in outcrop that could lead to local changes in orientation of the pegmatite dykes. |



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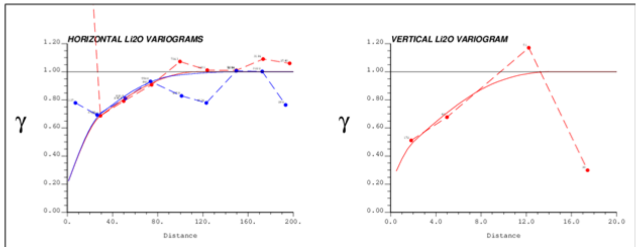
<table>
<tr><td></td><td>Resource estimation.<ul><li>The factors affecting continuity both of grade and geology.</li></ul></td><td>An overburden surface was also generated in Leapfrog Geo™ and incorporated into the block model.<br>The $Li_2O$% mineralization interpretation is contained wholly within the pegmatite geological unit. Pegmatite dykes are occasionally cut by dolerite dykes of Proterozoic age but are insignificant in width and size.</td></tr>
<tr><td>Dimensions</td><td><ul><li>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</li></ul></td><td>The James Bay Lithium deposit that falls into the Mineral Resource Estimate is approximately 2.2km long, 300m wide and has been defined to a depth of 300m. Sporadic pegmatite intersections in exploration drilling and outcrop continue to the east for an additional 2km</td></tr>
<tr><td>Estimation and modelling techniques</td><td><ul><li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li><li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li><li>The assumptions made regarding recovery of by-products.</li><li>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li><li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li><li>Any assumptions behind modelling of selective mining units.</li><li>Any assumptions about correlation between variables</li><li>Description of how the geological interpretation was used to control the resource estimates.</li><li>Discussion of basis for using or not using grade cutting or capping.</li><li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li></ul></td><td>Grade estimation for $Li_2O$% has been completed using Ordinary Kriging (OK) inside the pegmatite domains using hard boundaries. No other elements have been estimated.<br>The pegmatite domains have been grouped based on spatial clustering of individual dykes, as observed in outcrop also.<br>Compositing has been undertaken within domain boundaries at 1.5m.<br>No top-cuts have been applied as no high-grade outliers were identified during EDA.<br>Variography has been completed grouped domain basis. Domains with too few samples have borrowed variography from a nearby domain with more composites. See below for an example of a variogram model for Dyke 1400.<br>




The block model parent block size is 10 m (X) by 3 m (Y) by 10 m (Z), which is considered appropriate for the dominant drillhole spacing which defines the deposit (30 – 40m spacing).<br>A sub-block size of 0.25 m (X) by 0.25 m (Y) by 0.25 m (Z) has been used to define the mineralization edges, with the estimation undertaken at the parent block scale.<br>The block model is estimated using a 4-pass strategy as described in the table below:
<table>
<tr><th>Parameter</th><th>1st Pass</th><th>2nd Pass</th><th>3rd Pass</th><th>4th Pass</th></tr>
<tr><td>Interpolation method</td><td>OK</td><td>OK</td><td>OK</td><td>OK</td></tr>
<tr><td>Search range X (relative to variogram range)</td><td>1x</td><td>1x</td><td>1x</td><td>1x</td></tr>
<tr><td>Search range Y (relative to variogram range)</td><td>1x</td><td>1x</td><td>1x</td><td>1x</td></tr>
</table></td></tr>
</table>

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| | | | | |
|---|---|---|---|---|
| Search range Z (relative to variogram range) | 1x | 1x | 1x | 1x |
| Minimum number of composites | 4 | 7 | 7 | 2 |
| Maximum number of composites | 8 | 10 | 14 | 16 |
| Octant search | Yes | Yes | Yes | No |
| Minimum number of octants | 7 | 5 | 3 | - |
| Minimum number of composites per octant | 1 | 1 | 1 | - |
| Maximum number of composites per octant | 12 | 12 | 12 | - |
| Maximum number of composites per borehole | 3 | 3 | 3 | 3 |

The Mineral Resource estimate has been validated visually on section, with mean grade comparisons between the ordinary kriged grades and nearest neighbour grades, and swath plots comparing the composite grades and block model grades by Northing, Easting and RL. Also the ordinary kriging grades have been compared with ID2 methods.

G Mining Services Inc. constructed a check block model in Leapfrog Edge™ using the wireframes provided and a similar estimation approach, returning very similar results.

No reconciliation data exists for the James Bay Lithium Project as the project is in development.

No selective mining units are assumed in this estimate.

No correlation between variables has been assumed.

No assumptions have been made regarding recovery of any by-products.

| | | |
|---|---|---|
| **Moisture** | • *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.* | Tonnes have been estimated on a dry basis. |
| **Cut-off parameters** | • *The basis of the adopted cut-off grade(s) or quality parameters applied* | For the reporting of the Mineral Resource Estimate, a 0.62 $Li_2O$% cut-off within an optimized Whittle pit shell has been applied based on calculations including mining costs, processing costs, G&A and other geotechnical and economic parameters (see below) |
| **Mining factors or assumptions** | • *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of* | A Whittle pit optimization has been run in order to generate a pit shell wireframe for Mineral Resource reporting purposes. The mining assumptions/parameters applied to the optimization are: |

| Parameters | Value | Unit |
|---|---|---|
| Spodumene concentrate (6.0% $Li_2O$) price | 950 | USD/t |
| Off-site costs (marketing, etc.) | 2.5 | % of price |
| Mining costs | 5 | USD/t mined |
| Processing costs | 50 | USD/t of feed |
| General and Administrative | 12 | USD/t of feed |



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|---|---|---|
| | the mining assumptions made. | Mining dilution 5 %<br>Mining loss 10 %<br>Overall pit slope 50 degrees<br>Process rate 2,000,000 tonne of feed/year<br>$Li_2O$ process recovery 70 %<br>In situ cut-off grade 0.62 % $Li_2O$ |
| **Metallurgical factors or assumptions** | • *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.* | A $Li_2O$% metallurgical recovery of 70% has been applied during the pit optimization and generation of the pit shell. |
| **Environmental factors or assumptions** | • *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made* | No environmental factors or assumptions have been incorporated into this Mineral Resource Estimate. |
| **Bulk density** | • *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*<br>• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit,*<br>• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.* | Bulk density values have been calculated from 92 measurements using the pycnometer method. Data has been separated pegmatite material and host rock (metasediments predominantly) and bulk density values determined.<br><br>The following densities were applied:<br>Pegmatite – 2.7 g/$cm^3$<br>Host Rock – 2.77 g/$cm^3$<br>The deposit is not affected by weathering as fresh rock outcrops at surface.<br>More measurements are required in the host rock to discriminate metasediment from mafic intrusives, and G Mining recommends more density readings are taken in pegmatite material to better characterise any spatial zonation in the deposit. |



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|---|---|---|
| **Classification** | • *The basis for the classification of the Mineral Resources into varying confidence categories*<br>• *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.* | The resource classification has been applied to the Mineral Resource estimate based on the drilling data spacing, grade and geological continuity, quality of the estimation and data integrity. CIM Definitions (2014) have been followed, and the CIM Best Practice Guidelines (2019) have been adhered.<br>The classification takes into account the relative contributions of geological, data quality and confidence, as well as grade confidence and continuity.<br>After comparison in 3D between the drilling pattern and the whittle shell, Indicated category was assigned to all blocks inside the shell.<br>The classification reflects the view of the Competent Person. |
| **Audits or reviews** | • *The results of any audits or reviews of Mineral Resource estimates.* | This Mineral Resource estimate was originally produced by SRK Consulting Ltd. effective November 23rd 2017, and has been certified by Mr. James Purchase, P.Geo of G Mining Services Ltd. In 2021. G Mining produced a test block model and succeeded to reproduce the mineral resource statement from 2017. G Mining have reviewed all aspects of the MRE and believes that the block model is a good representation of the input data, and that it is suitable for mine planning purposes. |
| **Discussion of relative accuracy/confidence** | • *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate*<br>• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used*<br>• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available* | The relative accuracy of the MRE is reflected primarily in the resource category (Indicated). Continuity of pegmatite dykes and their lithium grades are demonstrated over multiple drill sections and are well delineated inside the optimised pit shell.<br>Internal dilution is currently incorporated into the pegmatite domains, which may result in an over-dilution of lithium grades compared with future head grade from the operation. These internal dilution domains could be modelled separately and excluded from the pegmatite wireframes, which would likely increase the quality of the interpretation and resulting block model.<br>Localised folding of the pegmatite dykes could cause local deviations between the long-term model (resource model) and grade control model; however these deviations are not considered to be significant at the feasibility study stage and can be addressed when production commences.<br>G Mining believes that the current MRE is suitable for mine planning purposes at the current stage of the project (feasibility stage). |

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## Section 4: Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Mineral Resource estimate for conversion to Ore Reserves** | • *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*<br>• *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.* | • The Mineral Resource for the James Bay Project is estimated at 40.33Mt at an average grade of 1.4% Li2O<br>• The effective date of the mineral resource is November 23, 2017<br>• The Mineral Reserve for the James Bay Project is estimated at 37.2 Mt, at an average grade of 1.3% Li2O for a concentrate generation of 6.1 Mt at a concentrate grade of 6.0% Li2O.<br>• The Mineral Reserve was prepared by G Mining Services Inc. ("GMS") as of December, 2021.<br>• Mineral Resources are inclusive of Mining Reserves |
| **Site visits** | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | • The CP for the Mineral Resource (Mr. James Purchase, P.Geo) visited the project in June 2021. The CP for the Mineral Reserve has not visited the Project. |
| **Study status** | • *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*<br>• *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.* | • The James Bay Lithium Project is at a Feasibility level study. |
| **Cut-off parameters** | • *The basis of the cut-off grade(s) or quality parameters applied.* | • Cut-off grade is at 0.62% $Li_2O$. |
| **Mining factors or assumptions** | • *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e., either by application of appropriate factors by optimization or by preliminary or detailed design).*<br>• *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.*<br>• *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade* | • The mining method is conventional open pit, drill blast, truck and shovel and selective mining.<br>• The slope configuration recommendations are presented in the table below. The pit slope profile is based on recommendations by Petram Mechanica: |

| Slope Parameters | |
|---|---|
| Final Bench Height (m) | 20.0 |
| Bench Face Angle ($^o$) | 75 |
| Avg. Design Catch Bench Width (m) | 9 |
| Inter-ramp Angle ($^o$) | 54 |

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<tr>
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<td>
control and pre-production drilling.
<ul>
<li>The major assumptions made, and Mineral Resource model used for pit and stope optimization (if appropriate).</li>
<li>The mining dilution factors used.</li>
<li>The mining recovery factors used.</li>
<li>Any minimum mining widths used.</li>
<li>The way Inferred Mineral Resources are utilized in mining studies and the sensitivity of the outcome to their inclusion.</li>
<li>The infrastructure requirements of the selected mining methods.</li>
</ul>
</td>
<td>
<table>
<tr><td>Overall Slope Angle (°)</td><td>48</td></tr>
<tr><td>Geotechnical benches (m)</td><td>20</td></tr>
</table>
<ul>
<li>Open pit optimization was conducted in GEOVIA WhittleTM to determine the optimal economic shape of the open pit to guide the pit design process.</li>
<li>The diluted cut-off grade calculated is 0.62%.</li>
<li>The average mining dilution factor is 7.8% at 0.3% $Li_2O$</li>
<li>The Process recovery was assumed at 71.2%</li>
<li>Mining widths reflect up to 8.3 $m^3$ electric Hydraulic Shovel and 100t haul trucks.</li>
<li>The Mineral Reserve does not include any Inferred Mineral Resources which were classified as waste for reporting purposes.</li>
<li>The following infrastructure facilities are planned for the Project:
<ul>
<li>69 kV Main-substation</li>
<li>Administrative and laboratory building</li>
<li>Operations camp</li>
<li>Workshop and reagent buildings</li>
<li>Propane storage and distribution facility</li>
<li>Diesel storage and distribution facility</li>
<li>Truck-shop including a Wash-bay</li>
<li>Cold dome warehouse for the storage of critical parts</li>
<li>Water treatment plant (effluent)</li>
<li>Potable water treatment plant</li>
<li>Sewage treatment plant</li>
<li>ROM pad and stockpile</li>
<li>Crushed mineralized material stockpile</li>
<li>Four Waste Rock and Tailings Storage Facilities (“WRTSFs”)</li>
<li>Overburden and Peat Storage Area (“OPSF”)</li>
<li>Two Water Management Ponds (“WMPs”) and a Plant Water Management Pond</li>
<li>Contact water ditches and non-contact diversion water ditches</li>
<li>Fine and coarse tailing warehouse building</li>
<li>Spodumene concentrate warehouse facility</li>
<li>Emulsion & explosive storage and distribution facility</li>
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</li>
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| **Metallurgical factors or assumptions** | • *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.*<br>• *Whether the metallurgical process is well-tested technology or novel in nature.*<br>• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.*<br>• *Any assumptions or allowances made for deleterious elements.*<br>• *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*<br>• *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?* | • The James Bay Project will have a crushing circuit and a dense media separation plant.<br>• Metallurgical processes are operational at up to 2.0Mpta nameplate.<br>• The Overall Plant Recovery is at 71.2%.<br>• The metallurgical process is well understood and well tested in the industry.<br>• Both SGS and Nagrom received bulk samples of 14,690kg and 400kg respectively. These samples were considered representative of the ore body as a whole.<br>• Gravity separation test work on a single composite sample and crushing particle size were undertaken by SGS Canada Inc. ("SGS") and Nagrom resulted in improved recovery and final product grade. These tests were deemed representative.<br>• Full-scale plant performance of Mt Cattlin and other Australian operations were compared to the James Bay test work data. A final recovery scale-up factor of 0.85 for the early years and 0.82 for the mid/later years was adopted. |
| **Environment** | *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterization and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.* | • GLCI has obtained all necessary permits and certifications from government agencies to allow exploration on the property. In 2020 and 2021, MFFP has issued annual Forest intervention licenses for mining activities to GLCI allowing the clearance of 6,12 ha and 1,72 ha to create access for geotechnical drillings.<br>• ESIA (version 2) was submitted in July 2021. |
| **Infrastructure** | • *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labor, accommodation; or the ease with which the infrastructure can be provided or accessed.* | • The Eastmain airport (130 km from site) will be used to transport workers from southern Québec<br>• The property is comprised of 54 contiguous mining titles that cover an area of approximately 2,164 ha<br>• The Project lands, subject to mining claims are easily accessed by the Billy Diamond Highway.<br>• The process plant and supporting infrastructures will be powered by Hydro-Québec's (HQ) 69 kV overhead distribution system. The 69 kV distribution line is relayed through Hydro-Québec's Muskeg substation. |
| **Costs** | • *The derivation of, or assumptions made, regarding projected capital costs in the study.*<br>• *The methodology used to estimate operating costs.*<br>• *Allowances made for the content of deleterious elements.*<br>• *The source of exchange rates used in the study.*<br>• *Derivation of transportation charges.* | The following assumptions apply to the capital cost estimate:<br><br>• Workweek of seven days @ 10 hours per day<br>• Single shift per day<br>• Labour rates are fully burdened, i.e., inclusive of salaries, fringe benefits, fees, funds, premiums,<br>• Employers' participation to various plans as well as income tax, and are based on the Labour Decree in effect in the Province of Québec |

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| | • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.*<br>• *The allowances made for royalties payable, both Government and private.* | • Labour rates are representative of the rates prepared by the ACQ (Association de Construction du Québec) for work performed in the Heavy Industry field of activity in remote areas or with camp & catering services. It should be noted that the first weekly 40 hours are paid at regular time while the remaining 30 hours are paid at double the base salary.<br>• Source of aggregate, adequate for fill/backfill as well as for concrete mix, in sufficient quantity, is located outcropping the pit<br>• Waste rock from the mine pit will be adequate for fill requirements for the ROM pad.<br>• Transfer of tailings to the TSF will be via 100t haul trucks.<br>• No provision for rework or repair of equipment and material delivered to site.<br>• No rework to field-erected and installed equipment and material.<br>• The estimate assumes no concrete work will require heating, i.e. concrete works will occur between the months of June and October.<br>• Estimate assumes no shortage of skilled trades worker throughout the entire construction phase.<br>• No provision for potential increase in salaries necessary to attract skilled trades workers.<br>• Construction contractors' facilities will be located within a maximum of five minutes' walking distance from any working point for the whole duration of the Project implementation.<br>• The construction site will be accessible 24 hours daily and seven days weekly, with sufficient and adequate safety supervision.<br>• No allowance for time and material type construction contracts<br>• Permanent administration offices will be made available in the early stages of the construction phase and used during construction.<br>• Estimate assumes transportation will be via chartered flights.<br>• Goods and Services Tax as well as Provincial Sales Tax are excluded.<br>• Risk provision, including costs pertaining to mitigation plans are excluded.<br>• Work stoppage resulting from labour or community dispute are excluded.<br>• Delays resulting from permitting issues, project financing, allowance for negative impact of a schedule deviation.<br>• The mine operating costs are estimated from first principles for all mine activities. Equipment hours required to meet production needs of the LOM plan are based on Deswik LHS simulations over the Life of Mine.<br>• Transportation charges of the concentrate from the Mine to Matagami by truck and from Matagami to Trois-Rivières by rail, were based on quotations from road and railway transporters.<br>• The forecasting of revenues was based on a market study done by a specialized firm.<br>• Royalties are 1.5% of net revenue (after penalties).<br>• Project contingency is 8.4% of direct and indirect costs<br>• Exchange rate: CAD 1.33/USD<br>• Mining 22.08 CAD/ t Tonnes Processed<br>• Processing 13.23CAD/ t Tonnes Processed |



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| | | • Operating Costs only, Excludes Royalties and IBA<br>• Concentrate transport and port costs 19.10 CAD/ t Tonnes Processed |
| **Revenue factors** | • *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*<br>• *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.* | • Mineral Reserves are estimated using the following long-term metal prices (Li2O Conc = USD950/t Li2O at 6.0% Li2O) and an exchange rate of C$/USD 1.33. |
| **Market assessment** | • *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*<br>• *A customer and competitor analysis along with the identification of likely market windows for the product.*<br>• *Price and volume forecasts and the basis for these forecasts.*<br>• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.* | • At current sales price the project is forecast to make profit.<br>• Sales prices are expected to meet or exceed current prices. |
| **Economic** | • *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*<br>• *NPV ranges and sensitivity to variations in the significant assumptions and inputs.* | • The economic analysis is carried out in real terms (i.e., without inflation factors) in 2021 Canadian dollars<br>• An 8% discount rate was applied to the cash flow to derive the NPV for the Project on a pre-tax and after-tax basis.<br>• The total net revenue derived from the sale of spodumene concentrate at 5.6% Li2O was estimated at CAD 8,403 million, which includes an estimate penalty of USD10/t of concentrate for every 0.1% under 6.0% Li2O.<br>• Variances in spodumene prices have the largest impact on the NPV. Operating costs (mining cost, processing cost and G&A cost) have the second largest impact followed by initial pre-production CAPEX and fuel price. |
| **Social** | • *The status of agreements with key stakeholders and matters leading to social licence to operate.* | • On March 18, 2019, a Preliminary Development Agreement (“PDA”) was signed with the Cree Nation of Eastmain, Grand Council of the Cree and Cree Nation Government. The PDA will be replaced by an Impact Benefit Agreement (“IBA”) before construction is initiated. |
| **Other** | • *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* | • Current stakeholder engagement indicates no reasonable objections with the Project. |



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| | • *Any identified material naturally occurring risks.*<br>• *The status of material legal agreements and marketing arrangements.*<br>• *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.* | |
| **Classification** | • *The basis for the classification of the Ore Reserves into varying confidence categories.*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.*<br>• *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).* | • Only Probable Mineral Reserve category has been determined for the project.<br>• The Ore Reserve result reflects the Competent Persons view of the deposit.<br>• All Probable Mineral Reserves have been derived from Indicated Category Mineral Resources. |
| **Audits or reviews** | • *The results of any audits or reviews of Ore Reserve estimates.* | • No external audits and reviews have been conducted on the Ore Reserves. |
| **Discussion of relative accuracy/ confidence** | • *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.*<br>• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*<br>• *Accuracy and confidence discussions should extend to* | • GMS is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation.<br>• Sufficient modifying factors and economic considerations have been applied to the indicated Mineral Resource to declare the Probable Mineral Reserve. |



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| | *specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*<br>• *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | |

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## SCHEDULE 1– DRILL HOLE INFORMATION USED IN THE MINERAL RESOURCE ESTIMATE

| Hole_ID | Hole Type | Max Depth | Orig Grid ID | Orig_East | Orig_North | Orig RL | Dip | Azimuth |
|---|---|---|---|---|---|---|---|---|
| CL08-01 | DDH | 102.0 | NAD83_18 | 359064.00 | 5789148.00 | 237.83 | -90.00 | 0.00 |
| CL08-02 | DDH | 75.0 | NAD83_18 | 359027.00 | 5789108.00 | 242.25 | -90.00 | 0.00 |
| CL08-03 | DDH | 51.0 | NAD83_18 | 358967.00 | 5789134.00 | 243.47 | -90.00 | 0.00 |
| CL08-04 | DDH | 51.0 | NAD83_18 | 358885.00 | 5789165.00 | 246.88 | -90.00 | 0.00 |
| CL08-05 | DDH | 51.0 | NAD83_18 | 358905.00 | 5789254.00 | 245.50 | -90.00 | 0.00 |
| CL08-06 | DDH | 51.0 | NAD83_18 | 358957.00 | 5789265.00 | 240.09 | -90.00 | 0.00 |
| CL08-07 | DDH | 60.8 | NAD83_18 | 358857.00 | 5789275.00 | 242.77 | -90.00 | 0.00 |
| CL08-08 | DDH | 60.0 | NAD83_18 | 358802.00 | 5789218.00 | 246.61 | -90.00 | 0.00 |
| CL08-09 | DDH | 60.0 | NAD83_18 | 358692.59 | 5789249.81 | 242.60 | -90.00 | 0.00 |
| CL08-10 | DDH | 51.0 | NAD83_18 | 358720.00 | 5789307.00 | 239.72 | -90.00 | 0.00 |
| CL08-11 | DDH | 54.0 | NAD83_18 | 358662.00 | 5789372.00 | 231.60 | -90.00 | 0.00 |
| CL08-12 | DDH | 69.0 | NAD83_18 | 358595.00 | 5789258.00 | 236.84 | -90.00 | 0.00 |
| CL08-13 | DDH | 51.0 | NAD83_18 | 358493.00 | 5789362.00 | 232.94 | -90.00 | 0.00 |
| CL08-14 | DDH | 51.0 | NAD83_18 | 358519.00 | 5789416.00 | 230.59 | -90.00 | 0.00 |
| CL08-15 | DDH | 51.0 | NAD83_18 | 358415.00 | 5789382.00 | 228.73 | -90.00 | 0.00 |
| CL08-16 | DDH | 51.0 | NAD83_18 | 358396.00 | 5789465.00 | 226.77 | -90.00 | 0.00 |
| CL08-17 | DDH | 51.0 | NAD83_18 | 358314.81 | 5789452.61 | 228.61 | -90.00 | 0.00 |
| CL08-18 | DDH | 105.0 | NAD83_18 | 358547.58 | 5789337.93 | 237.49 | -45.00 | 110.00 |
| CS-10.30 | CH | 9.6 | NAD83_18 | 358418.00 | 5789416.00 | 226.73 | 0.00 | 256.00 |
| CS-10.31 | CH | 8.0 | NAD83_18 | 358426.00 | 5789432.00 | 227.00 | 0.00 | 280.00 |
| CS-10.40 | CH | 5.5 | NAD83_18 | 358398.00 | 5789437.00 | 226.73 | 0.00 | 256.00 |
| CS-12.11 | CH | 17.2 | NAD83_18 | 358117.00 | 5789462.00 | 220.30 | 0.00 | 285.00 |
| CS-8.10 | CH | 5.9 | NAD83_18 | 358720.00 | 5789228.00 | 240.34 | 0.00 | 297.00 |
| CS-8.32 | CH | 17.4 | NAD83_18 | 358701.00 | 5789377.00 | 229.83 | 0.00 | 189.00 |
| CS-8.61 | CH | 34.5 | NAD83_18 | 358630.00 | 5789309.00 | 239.11 | 0.00 | 317.00 |
| CS-9.12 | CH | 11.1 | NAD83_18 | 358522.00 | 5789401.00 | 232.48 | 0.00 | 319.00 |
| CS-Dyke11 | CH | 19.5 | NAD83_18 | 358311.00 | 5789430.00 | 227.63 | 0.00 | 313.00 |
| CS-Dyke-11.11 | CH | 27.6 | NAD83_18 | 358339.00 | 5789457.00 | 229.30 | 0.00 | 319.00 |
| CS-Dyke12 | CH | 23.5 | NAD83_18 | 358111.00 | 5789437.00 | 224.16 | 0.00 | 292.00 |
| CS-Dyke-12.11 | CH | 13.6 | NAD83_18 | 358134.00 | 5789514.00 | 219.60 | 0.00 | 325.00 |
| CS-Dyke13 | CH | 20.5 | NAD83_18 | 357947.00 | 5789534.00 | 226.53 | 0.00 | 322.00 |
| CS-Dyke-13.11 | CH | 22.8 | NAD83_18 | 357927.00 | 5789527.00 | 224.50 | 0.00 | 345.00 |
| CS-Dyke14 | CH | 32.5 | NAD83_18 | 357901.00 | 5789598.00 | 226.04 | 0.00 | 286.00 |
| CS-Dyke-14.11 | CH | 41.0 | NAD83_18 | 357930.00 | 5789616.00 | 224.50 | 0.00 | 343.00 |
| CS-Dyke-14.12 | CH | 27.9 | NAD83_18 | 357862.00 | 5789577.00 | 225.50 | 0.00 | 324.00 |
| CS-Dyke-14.13 | CH | 14.8 | NAD83_18 | 357823.00 | 5789612.00 | 220.00 | 0.00 | 200.00 |
| CS-Dyke15 | CH | 37.0 | NAD83_18 | 357326.00 | 5789835.00 | 214.18 | 0.00 | 23.00 |
| CS-Dyke-15.11 | CH | 20.0 | NAD83_18 | 357361.00 | 5789851.00 | 213.00 | 0.00 | 9.00 |
| CS-Dyke-15.12 | CH | 22.5 | NAD83_18 | 357301.00 | 5789828.00 | 214.20 | 0.00 | 355.00 |
| CS-Dyke7.2 | CH | 15.0 | NAD83_18 | 358908.00 | 5789214.00 | 248.10 | 0.00 | 300.00 |
| CS-Dyke-7.21 | CH | 10.4 | NAD83_18 | 358922.00 | 5789248.00 | 244.00 | 0.00 | 284.00 |
| CS-Dyke-7.22 | CH | 25.0 | NAD83_18 | 358899.00 | 5789176.00 | 250.00 | 0.00 | 315.00 |
| CS-Dyke-7.23 | CH | 23.4 | NAD83_18 | 358888.00 | 5789155.00 | 247.00 | 0.00 | 300.00 |
| CS-Dyke-7.24 | CH | 9.0 | NAD83_18 | 358865.00 | 5789138.00 | 246.00 | 0.00 | 280.00 |
| CS-Dyke-7.30 | CH | 2.0 | NAD83_18 | 358901.00 | 5789255.00 | 244.80 | 0.00 | 315.00 |
| CS-Dyke-7.31 | CH | 3.6 | NAD83_18 | 358884.00 | 5789235.00 | 245.20 | 0.00 | 304.00 |
| CS-Dyke-7.32 | CH | 5.2 | NAD83_18 | 358873.00 | 5789214.00 | 245.50 | 0.00 | 292.00 |
| CS-Dyke-7.33 | CH | 6.7 | NAD83_18 | 358861.00 | 5789186.00 | 247.50 | 0.00 | 315.00 |
| CS-Dyke-7.40 | CH | 6.2 | NAD83_18 | 358857.00 | 5789258.00 | 244.40 | 0.00 | 323.00 |
| CS-Dyke-7.41 | CH | 9.3 | NAD83_18 | 358838.00 | 5789228.00 | 246.50 | 0.00 | 310.00 |
| CS-Dyke-7.50 | CH | 16.3 | NAD83_18 | 358850.00 | 5789264.00 | 245.20 | 0.00 | 312.00 |
| CS-Dyke-7.51 | CH | 9.2 | NAD83_18 | 358829.00 | 5789236.00 | 247.20 | 0.00 | 291.00 |
| CS-Dyke-7.52 | CH | 13.9 | NAD83_18 | 358800.00 | 5789189.00 | 245.00 | 0.00 | 300.00 |
| CS-Dyke-7.60 | CH | 9.3 | NAD83_18 | 358813.00 | 5789288.00 | 242.00 | 0.00 | 319.00 |
| CS-Dyke-7.61 | CH | 13.9 | NAD83_18 | 358815.00 | 5789244.00 | 245.50 | 0.00 | 305.00 |
| CS-Dyke-7.62 | CH | 7.0 | NAD83_18 | 358796.00 | 5789222.00 | 243.80 | 0.00 | 338.00 |
| CS-Dyke-7.63 | CH | 9.7 | NAD83_18 | 358782.00 | 5789208.00 | 246.50 | 0.00 | 307.00 |
| CS-Dyke-8.20 | CH | 6.0 | NAD83_18 | 358760.00 | 5789333.00 | 236.80 | 0.00 | 270.00 |
| CS-Dyke-8.21 | CH | 2.9 | NAD83_18 | 358738.00 | 5789302.00 | 238.80 | 0.00 | 342.00 |
| CS-Dyke-8.30 | CH | 8.0 | NAD83_18 | 358746.00 | 5789339.00 | 234.00 | 0.00 | 299.00 |
| CS-Dyke-8.31 | CH | 9.3 | NAD83_18 | 358730.00 | 5789318.00 | 240.00 | 0.00 | 301.00 |
| CS-Dyke-8.40 | CH | 2.6 | NAD83_18 | 358669.00 | 5789290.00 | 241.50 | 0.00 | 315.00 |
| CS-Dyke-8.50 | CH | 20.3 | NAD83_18 | 358660.00 | 5789288.00 | 241.80 | 0.00 | 313.00 |
| CS-Dyke-8.51 | CH | 13.0 | NAD83_18 | 358684.00 | 5789334.00 | 235.80 | 0.00 | 288.00 |
| CS-Dyke-8.60 | CH | 12.7 | NAD83_18 | 358628.00 | 5789350.00 | 237.50 | 0.00 | 297.00 |
| CS-Dyke8.7 | CH | 35.3 | NAD83_18 | 358600.00 | 5789352.00 | 242.33 | 0.00 | 326.00 |
| CS-Dyke-8.71 | CH | 32.0 | NAD83_18 | 358588.00 | 5789336.00 | 240.30 | 0.00 | 315.00 |
| CS-Dyke-9.10 | CH | 6.5 | NAD83_18 | 358527.00 | 5789381.00 | 233.80 | 0.00 | 262.00 |
| CS-Dyke-9.11 | CH | 8.1 | NAD83_18 | 358528.00 | 5789423.00 | 230.00 | 0.00 | 284.00 |
| CS-Dyke9.2 | CH | 18.0 | NAD83_18 | 358509.00 | 5789383.00 | 234.85 | 0.00 | 313.00 |



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| CS-Dyke-9.21 | CH | 7.1 | NAD83_18 | 358511.00 | 5789429.00 | 229.00 | 0.00 | 262.00 |
| JBL09-01 | DDH | 84.0 | NAD83_18 | 358813.84 | 5789161.48 | 242.67 | -44.00 | 110.00 |
| JBL09-02 | DDH | 66.0 | NAD83_18 | 358853.20 | 5789201.49 | 244.92 | -45.00 | 110.00 |
| JBL09-03 | DDH | 84.0 | NAD83_18 | 358870.00 | 5789245.00 | 244.19 | -47.00 | 110.00 |
| JBL09-04 | DDH | 59.0 | NAD83_18 | 358885.92 | 5789293.39 | 241.71 | -45.00 | 110.00 |
| JBL09-05 | DDH | 130.3 | NAD83_18 | 358785.35 | 5789301.36 | 236.05 | -47.00 | 110.00 |
| JBL09-06 | DDH | 149.7 | NAD83_18 | 358781.28 | 5789278.90 | 238.43 | -46.00 | 110.00 |
| JBL09-07 | DDH | 140.7 | NAD83_18 | 358765.21 | 5789227.25 | 242.27 | -46.00 | 110.00 |
| JBL09-08 | DDH | 153.2 | NAD83_18 | 358732.72 | 5789187.33 | 239.34 | -46.00 | 110.00 |
| JBL09-09 | DDH | 171.0 | NAD83_18 | 358784.06 | 5789301.86 | 236.13 | -81.00 | 110.00 |
| JBL09-10 | DDH | 164.6 | NAD83_18 | 358780.09 | 5789279.42 | 238.38 | -80.00 | 110.00 |
| JBL09-11 | DDH | 150.1 | NAD83_18 | 358763.94 | 5789227.78 | 242.21 | -81.00 | 110.00 |
| JBL09-12 | DDH | 164.8 | NAD83_18 | 358731.25 | 5789187.95 | 239.50 | -80.00 | 110.00 |
| JBL09-13 | DDH | 207.2 | NAD83_18 | 358645.38 | 5789120.16 | 226.52 | -48.00 | 110.00 |
| JBL09-14 | DDH | 156.0 | NAD83_18 | 358638.05 | 5789222.31 | 235.45 | -60.00 | 110.00 |
| JBL09-15 | DDH | 150.1 | NAD83_18 | 358680.07 | 5789259.69 | 240.67 | -60.00 | 110.00 |
| JBL09-16 | DDH | 160.0 | NAD83_18 | 358696.89 | 5789301.55 | 238.10 | -60.00 | 110.00 |
| JBL09-17 | DDH | 171.0 | NAD83_18 | 358723.63 | 5789354.17 | 229.83 | -60.00 | 110.00 |
| JBL09-18 | DDH | 155.6 | NAD83_18 | 358655.47 | 5789368.70 | 231.03 | -62.00 | 110.00 |
| JBL09-19 | DDH | 206.9 | NAD83_18 | 358638.53 | 5789327.86 | 238.53 | -60.00 | 110.00 |
| JBL09-20 | DDH | 210.0 | NAD83_18 | 358616.88 | 5789282.32 | 238.88 | -60.00 | 110.00 |
| JBL09-21B | DDH | 213.0 | NAD83_18 | 358577.18 | 5789247.28 | 234.88 | -62.11 | 115.12 |
| JBL09-22 | DDH | 147.0 | NAD83_18 | 358514.04 | 5789219.68 | 230.64 | -50.90 | 113.44 |
| JBL09-23 | DDH | 192.1 | NAD83_18 | 358541.90 | 5789340.13 | 236.54 | -73.63 | 128.30 |
| JBL09-24 | DDH | 165.1 | NAD83_18 | 358552.57 | 5789388.95 | 230.68 | -42.38 | 122.01 |
| JBL09-25 | DDH | 180.0 | NAD83_18 | 358551.44 | 5789389.51 | 230.66 | -78.54 | 142.63 |
| JBL09-26 | DDH | 117.1 | NAD83_18 | 358541.12 | 5789438.29 | 223.30 | -57.73 | 100.52 |
| JBL09-27 | DDH | 170.6 | NAD83_18 | 358498.49 | 5789294.97 | 233.84 | -50.20 | 122.89 |
| JBL09-28 | DDH | 180.1 | NAD83_18 | 358497.39 | 5789295.51 | 233.89 | -79.79 | 127.37 |
| JBL09-29 | DDH | 201.0 | NAD83_18 | 358442.44 | 5789278.77 | 229.40 | -60.07 | 123.89 |
| JBL09-30 | DDH | 180.1 | NAD83_18 | 358358.22 | 5789257.09 | 226.31 | -44.13 | 154.31 |
| JBL09-31 | DDH | 161.9 | NAD83_18 | 358473.89 | 5789437.18 | 225.46 | -49.23 | 111.00 |
| JBL09-32 | DDH | 161.9 | NAD83_18 | 358473.17 | 5789437.55 | 225.32 | -75.30 | 115.00 |
| JBL09-33 | DDH | 150.0 | NAD83_18 | 358448.28 | 5789400.48 | 228.06 | -43.80 | 118.00 |
| JBL09-34 | DDH | 192.0 | NAD83_18 | 358447.22 | 5789400.85 | 228.03 | -72.98 | 115.00 |
| JBL09-35 | DDH | 150.2 | NAD83_18 | 358426.77 | 5789354.08 | 229.78 | -48.23 | 116.00 |
| JBL09-36 | DDH | 210.1 | NAD83_18 | 358425.89 | 5789354.34 | 229.69 | -76.26 | 104.51 |
| JBL09-37 | DDH | 165.0 | NAD83_18 | 358378.30 | 5789376.21 | 227.89 | -79.73 | 137.00 |
| JBL09-38 | DDH | 170.8 | NAD83_18 | 358399.92 | 5789417.38 | 227.88 | -79.18 | 141.22 |
| JBL09-39 | DDH | 143.9 | NAD83_18 | 358389.30 | 5789467.85 | 226.84 | -80.14 | 142.00 |
| JBL09-40 | DDH | 128.9 | NAD83_18 | 358342.95 | 5789441.19 | 226.98 | -43.40 | 120.00 |
| JBL09-41 | DDH | 180.0 | NAD83_18 | 358521.89 | 5789322.20 | 235.59 | -45.36 | 111.31 |
| JBL09-42 | DDH | 144.0 | NAD83_18 | 357365.52 | 5789804.71 | 212.60 | -42.01 | 333.00 |
| JBL09-43 | DDH | 111.1 | NAD83_18 | 357379.54 | 5789896.48 | 210.58 | -41.92 | 186.89 |
| JBL09-44 | DDH | 80.8 | NAD83_18 | 357322.64 | 5789904.26 | 210.69 | -45.00 | 160.00 |
| JBL09-45 | DDH | 90.0 | NAD83_18 | 357274.98 | 5789883.81 | 210.59 | -46.02 | 165.24 |
| JBL09-46 | DDH | 156.2 | NAD83_18 | 357275.44 | 5789885.52 | 210.83 | -77.76 | 175.08 |
| JBL09-47 | DDH | 144.3 | NAD83_18 | 357228.86 | 5789861.95 | 210.31 | -76.61 | 164.14 |
| JBL09-48 | DDH | 81.0 | NAD83_18 | 357229.19 | 5789860.68 | 210.43 | -43.53 | 164.92 |
| JBL09-49 | DDH | 132.0 | NAD83_18 | 357186.92 | 5789831.17 | 210.27 | -75.47 | 170.54 |
| JBL09-50 | DDH | 81.0 | NAD83_18 | 357420.51 | 5789933.21 | 209.86 | -43.12 | 165.63 |
| JBL09-51 | DDH | 134.6 | NAD83_18 | 357420.17 | 5789934.45 | 209.72 | -76.35 | 163.68 |
| JBL09-52 | DDH | 87.0 | NAD83_18 | 358310.53 | 5789506.36 | 221.00 | -45.39 | 116.08 |
| JBL09-53 | DDH | 171.0 | NAD83_18 | 358310.44 | 5789478.36 | 223.67 | -43.17 | 129.51 |
| JBL09-54 | DDH | 159.0 | NAD83_18 | 358243.08 | 5789504.54 | 219.26 | -43.68 | 116.00 |
| JBL09-55 | DDH | 135.0 | NAD83_18 | 358242.10 | 5789504.91 | 219.29 | -69.12 | 110.00 |
| JBL09-56 | DDH | 159.0 | NAD83_18 | 358241.72 | 5789505.03 | 219.25 | -85.13 | 110.00 |
| JBL09-57 | DDH | 107.8 | NAD83_18 | 358254.05 | 5789523.36 | 218.20 | -40.24 | 102.00 |
| JBL09-58 | DDH | 95.9 | NAD83_18 | 358253.29 | 5789523.73 | 218.10 | -74.96 | 114.50 |
| JBL09-59 | DDH | 84.0 | NAD83_18 | 358252.92 | 5789444.74 | 223.01 | -45.54 | 112.76 |
| JBL09-60 | DDH | 180.0 | NAD83_18 | 358251.70 | 5789445.12 | 222.89 | -85.17 | 110.00 |
| JBL09-61 | DDH | 209.9 | NAD83_18 | 358183.94 | 5789473.41 | 221.03 | -66.59 | 110.00 |
| JBL09-62 | DDH | 147.0 | NAD83_18 | 357822.68 | 5789627.39 | 216.54 | -43.82 | 145.54 |
| JBL09-63 | DDH | 192.0 | NAD83_18 | 357855.00 | 5789671.00 | 213.24 | -43.42 | 151.97 |
| JBL09-64 | DDH | 91.7 | NAD83_18 | 357894.59 | 5789689.06 | 213.48 | -45.45 | 147.86 |
| JBL09-65 | DDH | 302.7 | NAD83_18 | 357823.04 | 5789716.44 | 212.72 | -40.21 | 149.79 |
| JBL09-66 | DDH | 261.0 | NAD83_18 | 357781.66 | 5789693.62 | 212.83 | -41.84 | 155.30 |
| JBL09-67 | DDH | 195.0 | NAD83_18 | 357767.00 | 5789620.00 | 215.12 | -44.60 | 154.37 |
| JBL09-68 | DDH | 215.6 | NAD83_18 | 357715.21 | 5789606.87 | 214.63 | -41.66 | 157.72 |
| JBL09-69 | DDH | 150.3 | NAD83_18 | 357759.01 | 5789544.72 | 223.19 | -45.00 | 145.00 |
| JBL09-70 | DDH | 177.0 | NAD83_18 | 358197.21 | 5789411.10 | 223.03 | -63.25 | 110.00 |
| JBL09-71 | DDH | 80.7 | NAD83_18 | 357791.53 | 5789486.47 | 225.96 | -42.34 | 150.36 |
| JBL09-72 | DDH | 141.2 | NAD83_18 | 357799.20 | 5789558.87 | 225.45 | -43.94 | 149.08 |
| JBL09-73 | DDH | 72.0 | NAD83_18 | 357838.69 | 5789512.86 | 226.58 | -45.63 | 148.94 |
| JBL09-74 | DDH | 123.0 | NAD83_18 | 357838.63 | 5789564.20 | 226.64 | -44.44 | 150.93 |
| JBL09-75 | DDH | 90.0 | NAD83_18 | 357914.41 | 5789570.48 | 224.07 | -44.80 | 152.92 |

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|---|---|---|---|---|---|---|---|---|
| JBL09-76 | DDH | 146.9 | NAD83_18 | 357914.93 | 5789569.41 | 224.12 | -76.74 | 150.15 |
| JBL09-77 | DDH | 90.0 | NAD83_18 | 357950.83 | 5789610.41 | 222.39 | -44.65 | 148.17 |
| JBL09-78 | DDH | 93.0 | NAD83_18 | 358068.67 | 5789541.76 | 219.45 | -42.11 | 113.58 |
| JBL09-79 | DDH | 84.0 | NAD83_18 | 358047.62 | 5789492.42 | 223.13 | -41.85 | 110.00 |
| JBL09-80 | DDH | 96.0 | NAD83_18 | 358020.05 | 5789448.17 | 223.89 | -40.73 | 110.00 |
| JBL09-81 | DDH | 150.2 | NAD83_18 | 357924.66 | 5789423.30 | 224.76 | -40.36 | 110.00 |
| JBL09-82 | DDH | 165.0 | NAD83_18 | 357989.78 | 5789562.14 | 222.25 | -45.48 | 127.47 |
| JBL09-83 | DDH | 141.0 | NAD83_18 | 357985.47 | 5789509.67 | 223.24 | -38.88 | 110.00 |
| JBL09-84 | DDH | 147.3 | NAD83_18 | 357961.68 | 5789466.63 | 224.44 | -40.35 | 111.42 |
| JBL17-01 | DDH | 78.0 | NAD83_18 | 357429.72 | 5789880.64 | 210.88 | -44.40 | 173.10 |
| JBL17-02 | DDH | 141.0 | NAD83_18 | 357390.19 | 5789924.24 | 210.43 | -49.30 | 162.00 |
| JBL17-03 | DDH | 114.0 | NAD83_18 | 357395.95 | 5789900.40 | 210.62 | -49.80 | 156.40 |
| JBL17-04 | DDH | 126.0 | NAD83_18 | 357321.12 | 5789898.46 | 210.67 | -70.40 | 154.60 |
| JBL17-05 | DDH | 102.0 | NAD83_18 | 357321.49 | 5789897.50 | 210.64 | -45.30 | 158.00 |
| JBL17-06 | DDH | 114.0 | NAD83_18 | 357349.57 | 5789893.36 | 210.83 | -52.90 | 161.00 |
| JBL17-07 | DDH | 189.0 | NAD83_18 | 357291.49 | 5789911.18 | 210.59 | -78.10 | 159.70 |
| JBL17-08 | DDH | 75.0 | NAD83_18 | 357303.74 | 5789870.92 | 210.89 | -60.30 | 162.40 |
| JBL17-09 | DDH | 192.0 | NAD83_18 | 357247.55 | 5789880.35 | 210.41 | -76.80 | 154.60 |
| JBL17-10 | DDH | 123.0 | NAD83_18 | 357261.84 | 5789848.30 | 210.93 | -71.60 | 156.70 |
| JBL17-100 | DDH | 234.0 | NAD83_18 | 358240.83 | 5789417.03 | 224.42 | -66.70 | 110.80 |
| JBL17-101 | DDH | 180.0 | NAD83_18 | 358261.22 | 5789361.59 | 224.17 | -87.00 | 56.50 |
| JBL17-102 | DDH | 231.0 | NAD83_18 | 358203.11 | 5789328.04 | 223.18 | -89.00 | 35.30 |
| JBL17-103 | DDH | 270.0 | NAD83_18 | 357780.24 | 5789513.96 | 225.28 | -42.50 | 145.90 |
| JBL17-104 | DDH | 282.0 | NAD83_18 | 357822.64 | 5789543.71 | 226.51 | -44.60 | 145.10 |
| JBL17-105 | DDH | 314.2 | NAD83_18 | 357864.26 | 5789590.83 | 228.32 | -43.40 | 146.70 |
| JBL17-106 | DDH | 303.0 | NAD83_18 | 357905.97 | 5789618.74 | 227.40 | -42.50 | 153.20 |
| JBL17-107 | DDH | 246.0 | NAD83_18 | 357937.79 | 5789587.20 | 223.47 | -41.30 | 145.00 |
| JBL17-108 | DDH | 345.0 | NAD83_18 | 357876.72 | 5789528.66 | 227.40 | -42.20 | 147.60 |
| JBL17-109 | DDH | 192.0 | NAD83_18 | 357924.56 | 5789462.14 | 226.25 | -42.20 | 145.90 |
| JBL17-11 | DDH | 210.0 | NAD83_18 | 357223.00 | 5789889.64 | 210.25 | -76.50 | 152.40 |
| JBL17-110 | DDH | 150.0 | NAD83_18 | 359310.26 | 5788925.15 | 231.10 | -46.40 | 109.20 |
| JBL17-111 | DDH | 159.0 | NAD83_18 | 359429.44 | 5788931.99 | 231.85 | -43.70 | 107.20 |
| JBL17-112 | DDH | 153.0 | NAD83_18 | 359558.61 | 5788912.52 | 227.93 | -43.80 | 106.20 |
| JBL17-113 | DDH | 309.0 | NAD83_18 | 358572.76 | 5789216.70 | 232.16 | -46.10 | 119.10 |
| JBL17-114 | DDH | 306.0 | NAD83_18 | 358624.58 | 5789157.93 | 229.93 | -49.40 | 121.80 |
| JBL17-115 | DDH | 252.0 | NAD83_18 | 358740.99 | 5789261.60 | 242.46 | -60.60 | 112.60 |
| JBL17-116 | DDH | 240.0 | NAD83_18 | 358778.94 | 5789327.68 | 233.56 | -59.60 | 119.80 |
| JBL17-117 | DDH | 150.0 | NAD83_18 | 358350.70 | 5789274.85 | 227.12 | -61.50 | 105.80 |
| JBL17-118 | DDH | 231.0 | NAD83_18 | 358348.62 | 5789327.82 | 226.46 | -70.70 | 103.60 |
| JBL17-119 | DDH | 228.0 | NAD83_18 | 358446.37 | 5789313.19 | 230.32 | -52.40 | 120.20 |
| JBL17-12 | DDH | 135.0 | NAD83_18 | 357235.35 | 5789857.83 | 210.66 | -58.90 | 165.40 |
| JBL17-120 | DDH | 162.0 | NAD83_18 | 358485.45 | 5789407.91 | 228.76 | -74.90 | 126.00 |
| JBL17-121 | DDH | 234.0 | NAD83_18 | 358509.63 | 5789425.41 | 229.74 | -61.20 | 115.60 |
| JBL17-122 | DDH | 222.0 | NAD83_18 | 358257.59 | 5789310.80 | 223.40 | -60.80 | 106.00 |
| JBL17-123 | DDH | 213.0 | NAD83_18 | 358216.83 | 5789358.06 | 223.48 | -75.40 | 103.50 |
| JBL17-124 | DDH | 210.0 | NAD83_18 | 358292.12 | 5789352.17 | 224.58 | -76.20 | 94.00 |
| JBL17-125 | DDH | 246.0 | NAD83_18 | 358224.84 | 5789405.22 | 224.58 | -60.40 | 109.20 |
| JBL17-126 | DDH | 168.0 | NAD83_18 | 358235.35 | 5789477.82 | 220.46 | -46.00 | 106.40 |
| JBL17-127 | DDH | 270.0 | NAD83_18 | 358678.47 | 5789201.78 | 236.22 | -46.30 | 114.70 |
| JBL17-128 | DDH | 393.0 | NAD83_18 | 357728.79 | 5789664.76 | 213.20 | -40.10 | 141.30 |
| JBL17-129 | DDH | 387.0 | NAD83_18 | 357782.98 | 5789668.90 | 213.27 | -40.50 | 152.60 |
| JBL17-13 | DDH | 111.0 | NAD83_18 | 357203.94 | 5789865.02 | 210.15 | -57.10 | 159.50 |
| JBL17-130 | DDH | 363.0 | NAD83_18 | 357819.24 | 5789675.08 | 213.22 | -40.70 | 148.30 |
| JBL17-131 | DDH | 309.0 | NAD83_18 | 357803.69 | 5789730.85 | 212.64 | -41.30 | 143.80 |
| JBL17-132 | DDH | 381.0 | NAD83_18 | 357742.50 | 5789713.98 | 212.94 | -39.90 | 144.70 |
| JBL17-133 | DDH | 237.1 | NAD83_18 | 357731.51 | 5789764.06 | 212.59 | -43.50 | 144.20 |
| JBL17-134 | DDH | 264.0 | NAD83_18 | 357691.49 | 5789742.56 | 213.19 | -40.90 | 144.10 |
| JBL17-135 | DDH | 315.0 | NAD83_18 | 357639.08 | 5789761.38 | 213.82 | -44.40 | 149.00 |
| JBL17-136 | DDH | 378.0 | NAD83_18 | 357592.51 | 5789818.55 | 213.35 | -41.30 | 143.10 |
| JBL17-137 | DDH | 300.0 | NAD83_18 | 357632.79 | 5789694.60 | 213.36 | -42.90 | 142.80 |
| JBL17-138 | DDH | 342.0 | NAD83_18 | 357577.55 | 5789721.09 | 214.05 | -43.40 | 142.00 |
| JBL17-139 | DDH | 366.0 | NAD83_18 | 357582.28 | 5789755.06 | 215.31 | -42.70 | 154.30 |
| JBL17-14 | DDH | 75.0 | NAD83_18 | 357205.68 | 5789841.93 | 210.17 | -54.60 | 164.40 |
| JBL17-140 | DDH | 414.0 | NAD83_18 | 357518.04 | 5789789.92 | 214.06 | -43.70 | 151.20 |
| JBL17-141 | DDH | 276.0 | NAD83_18 | 357475.56 | 5789765.03 | 214.79 | -42.60 | 154.40 |
| JBL17-142 | DDH | 284.7 | NAD83_18 | 357480.09 | 5789734.28 | 215.65 | -64.50 | 140.30 |
| JBL17-143 | DDH | 255.0 | NAD83_18 | 357440.38 | 5789702.51 | 215.45 | -63.90 | 139.40 |
| JBL17-144 | DDH | 120.0 | NAD83_18 | 357367.55 | 5789950.37 | 210.48 | -44.20 | 155.40 |
| JBL17-145 | DDH | 117.0 | NAD83_18 | 357324.17 | 5789936.51 | 210.71 | -44.70 | 136.00 |
| JBL17-146 | DDH | 216.0 | NAD83_18 | 357270.77 | 5789934.73 | 210.49 | -43.90 | 148.30 |
| JBL17-147 | DDH | 234.0 | NAD83_18 | 357234.02 | 5789908.50 | 210.42 | -42.40 | 135.40 |
| JBL17-148 | DDH | 210.0 | NAD83_18 | 357190.95 | 5789897.93 | 209.88 | -44.80 | 148.80 |
| JBL17-149 | DDH | 150.0 | NAD83_18 | 357150.08 | 5789903.20 | 209.19 | -41.00 | 158.50 |
| JBL17-15 | DDH | 240.0 | NAD83_18 | 357168.96 | 5789859.04 | 209.95 | -69.30 | 153.40 |
| JBL17-150 | DDH | 192.0 | NAD83_18 | 357149.65 | 5789904.19 | 209.11 | -68.00 | 157.10 |
| JBL17-151 | DDH | 225.0 | NAD83_18 | 359711.56 | 5788794.68 | 211.34 | -44.40 | 120.20 |



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| JBL17-152 | DDH | 201.0 | NAD83_18 | 359908.75 | 5788745.29 | 207.65 | -44.10 | 109.20 |
| JBL17-153 | DDH | 231.0 | NAD83_18 | 359144.78 | 5788959.43 | 228.68 | -46.60 | 111.70 |
| JBL17-154 | DDH | 174.0 | NAD83_18 | 357858.63 | 5789702.25 | 213.11 | -43.70 | 142.00 |
| JBL17-155 | DDH | 399.0 | NAD83_18 | 357512.19 | 5789725.34 | 215.89 | -46.90 | 147.90 |
| JBL17-156 | DDH | 363.0 | NAD83_18 | 357637.75 | 5789832.93 | 213.02 | -40.30 | 148.50 |
| JBL17-157 | DDH | 201.0 | NAD83_18 | 357084.90 | 5789999.74 | 209.07 | -44.10 | 147.20 |
| JBL17-158 | DDH | 222.0 | NAD83_18 | 356944.12 | 5790072.13 | 207.65 | -45.60 | 140.10 |
| JBL17-159 | DDH | 823.5 | NAD83_18 | 357297.61 | 5789887.74 | 210.92 | -38.80 | 154.50 |
| JBL17-16 | DDH | 219.0 | NAD83_18 | 357377.65 | 5789790.18 | 214.03 | -43.80 | 113.90 |
| JBL17-17 | DDH | 249.0 | NAD83_18 | 357515.63 | 5789740.19 | 215.32 | -45.30 | 109.70 |
| JBL17-18 | DDH | 225.0 | NAD83_18 | 357659.63 | 5789688.95 | 213.50 | -44.60 | 101.30 |
| JBL17-19 | DDH | 171.0 | NAD83_18 | 357842.53 | 5789690.80 | 213.19 | -41.40 | 135.90 |
| JBL17-20 | DDH | 492.0 | NAD83_18 | 357837.93 | 5789650.54 | 214.94 | -41.30 | 148.10 |
| JBL17-21 | DDH | 339.0 | NAD83_18 | 357802.02 | 5789650.94 | 213.58 | -42.40 | 144.10 |
| JBL17-22 | DDH | 264.0 | NAD83_18 | 357770.64 | 5789602.29 | 217.58 | -42.80 | 150.00 |
| JBL17-23 | DDH | 321.1 | NAD83_18 | 357907.27 | 5789575.48 | 224.57 | -41.90 | 150.00 |
| JBL17-24 | DDH | 237.0 | NAD83_18 | 357885.50 | 5789548.11 | 225.71 | -42.90 | 146.00 |
| JBL17-25 | DDH | 228.0 | NAD83_18 | 357852.06 | 5789526.13 | 226.94 | -46.10 | 147.60 |
| JBL17-26 | DDH | 197.6 | NAD83_18 | 357758.71 | 5789557.82 | 222.16 | -63.10 | 150.60 |
| JBL17-27 | DDH | 180.0 | NAD83_18 | 357669.62 | 5789526.99 | 219.60 | -44.80 | 147.90 |
| JBL17-28 | DDH | 201.0 | NAD83_18 | 357898.71 | 5789493.16 | 226.23 | -42.50 | 150.70 |
| JBL17-29 | DDH | 201.0 | NAD83_18 | 357889.56 | 5789450.95 | 224.14 | -45.00 | 116.70 |
| JBL17-30 | DDH | 129.0 | NAD83_18 | 358044.33 | 5789441.49 | 223.95 | -41.90 | 124.20 |
| JBL17-31 | DDH | 71.7 | NAD83_18 | 358091.98 | 5789491.48 | 221.98 | -42.60 | 114.20 |
| JBL17-32 | DDH | 80.8 | NAD83_18 | 358073.95 | 5789524.52 | 220.30 | -45.70 | 113.90 |
| JBL17-33 | DDH | 141.0 | NAD83_18 | 358057.99 | 5789558.67 | 219.43 | -43.60 | 120.70 |
| JBL17-34 | DDH | 195.1 | NAD83_18 | 358013.18 | 5789573.79 | 221.39 | -43.40 | 120.70 |
| JBL17-35 | DDH | 156.0 | NAD83_18 | 358013.32 | 5789531.46 | 222.02 | -43.10 | 147.20 |
| JBL17-36 | DDH | 201.0 | NAD83_18 | 358011.88 | 5789497.73 | 223.27 | -43.00 | 148.30 |
| JBL17-37 | DDH | 203.8 | NAD83_18 | 357968.78 | 5789465.09 | 224.25 | -54.40 | 141.10 |
| JBL17-37A | DDH | 30.0 | NAD83_18 | 357969.00 | 5789465.00 | 224.22 | -53.50 | 135.70 |
| JBL17-38 | DDH | 330.0 | NAD83_18 | 357954.00 | 5789525.00 | 223.06 | -41.70 | 149.20 |
| JBL17-39 | DDH | 210.0 | NAD83_18 | 358209.97 | 5789391.71 | 224.13 | -89.00 | 211.40 |
| JBL17-40 | DDH | 219.0 | NAD83_18 | 358187.31 | 5789434.84 | 222.64 | -70.00 | 120.60 |
| JBL17-41 | DDH | 129.0 | NAD83_18 | 358283.60 | 5789439.43 | 225.42 | -63.90 | 115.90 |
| JBL17-42 | DDH | 219.0 | NAD83_18 | 358283.91 | 5789394.16 | 226.14 | -69.80 | 113.80 |
| JBL17-43 | DDH | 72.0 | NAD83_18 | 358366.28 | 5789471.02 | 226.69 | -45.50 | 111.50 |
| JBL17-44 | DDH | 141.0 | NAD83_18 | 358443.05 | 5789426.16 | 227.10 | -74.40 | 118.50 |

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| JBL17-45 | DDH | 192.0 | NAD83_18 | 358427.03 | 5789399.17 | 228.83 | -78.40 | 124.60 |
| JBL17-46 | DDH | 269.8 | NAD83_18 | 358330.15 | 5789383.47 | 227.49 | -79.30 | 106.30 |
| JBL17-47 | DDH | 243.0 | NAD83_18 | 358556.50 | 5789410.03 | 227.56 | -58.70 | 116.30 |
| JBL17-48 | DDH | 171.0 | NAD83_18 | 358551.94 | 5789370.70 | 232.31 | -45.30 | 115.90 |
| JBL17-49 | DDH | 141.0 | NAD83_18 | 358516.51 | 5789397.96 | 232.59 | -77.30 | 126.90 |
| JBL17-50 | DDH | 222.0 | NAD83_18 | 358496.90 | 5789346.85 | 233.21 | -75.70 | 120.50 |
| JBL17-51 | DDH | 207.0 | NAD83_18 | 358415.00 | 5789326.88 | 229.47 | -73.10 | 107.10 |
| JBL17-52 | DDH | 228.0 | NAD83_18 | 358308.66 | 5789294.90 | 224.96 | -62.50 | 107.60 |
| JBL17-53 | DDH | 255.0 | NAD83_18 | 357472.18 | 5789699.29 | 215.24 | -44.00 | 105.30 |
| JBL17-54 | DDH | 228.0 | NAD83_18 | 357534.54 | 5789786.32 | 214.16 | -43.00 | 109.80 |
| JBL17-55 | DDH | 264.0 | NAD83_18 | 357604.64 | 5789630.96 | 213.95 | -43.40 | 105.60 |
| JBL17-56 | DDH | 261.0 | NAD83_18 | 357672.16 | 5789734.58 | 213.25 | -42.60 | 108.80 |
| JBL17-57 | DDH | 96.0 | NAD83_18 | 357872.89 | 5789596.73 | 228.53 | -76.40 | 101.70 |
| JBL17-58 | DDH | 60.0 | NAD83_18 | 357903.72 | 5789624.54 | 228.12 | -75.10 | 111.40 |
| JBL17-59 | DDH | 168.0 | NAD83_18 | 358224.46 | 5789456.93 | 221.19 | -50.00 | 103.50 |
| JBL17-60 | DDH | 207.0 | NAD83_18 | 358223.71 | 5789457.03 | 221.21 | -66.10 | 103.50 |
| JBL17-61 | DDH | 240.0 | NAD83_18 | 358649.84 | 5789349.85 | 234.20 | -67.50 | 118.90 |
| JBL17-62 | DDH | 210.0 | NAD83_18 | 358589.68 | 5789321.99 | 239.21 | -71.40 | 112.80 |
| JBL17-63 | DDH | 210.3 | NAD83_18 | 358851.71 | 5789223.19 | 244.45 | -56.20 | 112.00 |
| JBL17-64 | DDH | 246.0 | NAD83_18 | 358527.22 | 5789234.49 | 232.02 | -60.40 | 111.20 |
| JBL17-65 | DDH | 216.0 | NAD83_18 | 358753.80 | 5789310.53 | 237.26 | -64.50 | 124.20 |
| JBL17-66 | DDH | 288.0 | NAD83_18 | 358706.28 | 5789274.35 | 241.87 | -60.50 | 108.50 |
| JBL17-67 | DDH | 264.1 | NAD83_18 | 358682.51 | 5789224.22 | 237.47 | -60.50 | 120.20 |
| JBL17-68 | DDH | 258.0 | NAD83_18 | 358632.68 | 5789197.41 | 232.83 | -65.70 | 116.60 |
| JBL17-69 | DDH | 162.0 | NAD83_18 | 358827.86 | 5789307.37 | 241.27 | -60.10 | 109.50 |
| JBL17-70 | DDH | 234.1 | NAD83_18 | 358779.59 | 5789246.61 | 242.98 | -54.70 | 107.20 |
| JBL17-71 | DDH | 207.1 | NAD83_18 | 358746.39 | 5789208.47 | 240.34 | -74.10 | 109.60 |
| JBL17-72 | DDH | 270.0 | NAD83_18 | 358700.52 | 5789171.03 | 235.76 | -65.00 | 111.90 |
| JBL17-73 | DDH | 117.0 | NAD83_18 | 358859.94 | 5789270.34 | 243.25 | -48.60 | 113.20 |
| JBL17-74 | DDH | 144.0 | NAD83_18 | 358548.00 | 5789280.09 | 235.30 | -49.60 | 114.30 |
| JBL17-75 | DDH | 125.8 | NAD83_18 | 358837.52 | 5789170.38 | 244.49 | -48.10 | 108.80 |
| JBL17-76 | DDH | 207.3 | NAD83_18 | 358815.40 | 5789131.26 | 238.20 | -50.30 | 114.30 |
| JBL17-77 | DDH | 111.4 | NAD83_18 | 359178.98 | 5789017.19 | 235.23 | -44.20 | 116.60 |
| JBL17-78 | DDH | 102.3 | NAD83_18 | 359177.80 | 5789071.26 | 237.07 | -45.70 | 107.30 |
| JBL17-79 | DDH | 120.2 | NAD83_18 | 359173.77 | 5789123.77 | 234.71 | -45.90 | 115.30 |
| JBL17-80 | DDH | 129.1 | NAD83_18 | 359186.51 | 5789176.37 | 230.81 | -45.50 | 113.30 |
| JBL17-81 | DDH | 135.4 | NAD83_18 | 359051.56 | 5789168.92 | 237.64 | -43.70 | 116.40 |
| JBL17-82 | DDH | 168.0 | NAD83_18 | 359033.48 | 5789119.95 | 241.42 | -46.60 | 114.40 |

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|---|---|---|---|---|---|---|---|---|
| JBL17-83 | DDH | 213.0 | NAD83_18 | 359028.87 | 5789063.10 | 237.06 | -45.50 | 109.70 |
| JBL17-84 | DDH | 210.0 | NAD83_18 | 359028.30 | 5789013.75 | 229.99 | -46.10 | 109.70 |
| JBL17-85 | DDH | 312.0 | NAD83_18 | 358896.01 | 5789071.39 | 231.99 | -43.80 | 107.70 |
| JBL17-86 | DDH | 204.1 | NAD83_18 | 358903.43 | 5789118.92 | 239.68 | -45.10 | 112.20 |
| JBL17-87 | DDH | 96.0 | NAD83_18 | 358927.95 | 5789159.00 | 243.64 | -44.10 | 110.10 |
| JBL17-88 | DDH | 111.0 | NAD83_18 | 358943.12 | 5789212.74 | 243.54 | -44.30 | 107.50 |
| JBL17-89 | DDH | 87.0 | NAD83_18 | 359159.36 | 5788969.94 | 230.42 | -45.00 | 107.80 |
| JBL17-90 | DDH | 144.0 | NAD83_18 | 359100.96 | 5788988.62 | 229.54 | -43.80 | 113.20 |
| JBL17-91 | DDH | 252.0 | NAD83_18 | 358963.19 | 5789039.47 | 230.12 | -46.00 | 116.60 |
| JBL17-92 | DDH | 162.0 | NAD83_18 | 359097.47 | 5789052.02 | 243.41 | -45.30 | 104.20 |
| JBL17-93 | DDH | 75.1 | NAD83_18 | 359131.69 | 5788937.81 | 227.43 | -44.10 | 111.00 |
| JBL17-94 | DDH | 198.1 | NAD83_18 | 359003.56 | 5788982.55 | 227.66 | -46.00 | 108.70 |
| JBL17-95 | DDH | 201.0 | NAD83_18 | 358859.80 | 5789040.03 | 228.36 | -44.40 | 107.10 |
| JBL17-96 | DDH | 237.1 | NAD83_18 | 358671.33 | 5789316.58 | 238.31 | -60.20 | 112.10 |
| JBL17-97 | DDH | 231.0 | NAD83_18 | 358639.07 | 5789259.41 | 238.14 | -59.70 | 116.10 |
| JBL17-98 | DDH | 242.9 | NAD83_18 | 358454.86 | 5789370.90 | 231.71 | -76.80 | 106.00 |
| JBL17-99 | DDH | 308.9 | NAD83_18 | 358399.09 | 5789360.76 | 228.55 | -77.00 | 115.20 |
| JBL17-M04-D17 | DDH | 78.0 | NAD83_18 | 357653.48 | 5789719.51 | 213.28 | -90.00 | 0.00 |
| JBL17-M05-D16 | DDH | 105.0 | NAD83_18 | 357528.02 | 5789749.68 | 215.30 | -90.00 | 0.00 |
| JBL17-S01 | DDH | 120.0 | NAD83_18 | 357461.00 | 5790823.00 | 208.45 | -45.00 | 115.00 |
| JBL17-S02 | DDH | 120.0 | NAD83_18 | 357573.00 | 5790823.00 | 209.29 | -45.00 | 115.00 |
| JBL17-S03 | DDH | 120.0 | NAD83_18 | 357685.00 | 5790819.00 | 208.57 | -45.00 | 115.00 |
| JBL17-S04 | DDH | 120.0 | NAD83_18 | 357793.00 | 5790822.00 | 207.41 | -45.10 | 115.40 |
| JBL17-S05 | DDH | 120.0 | NAD83_18 | 357458.00 | 5790709.00 | 210.06 | -40.80 | 117.30 |
| JBL17-S06 | DDH | 120.0 | NAD83_18 | 357561.00 | 5790702.00 | 209.45 | -42.50 | 118.00 |
| JBL17-S07 | DDH | 120.0 | NAD83_18 | 357674.00 | 5790696.00 | 208.98 | -42.50 | 125.90 |
| JBL17-S08 | DDH | 120.0 | NAD83_18 | 357785.00 | 5790694.00 | 209.18 | -44.10 | 121.30 |
| JBL17-S09 | DDH | 120.0 | NAD83_18 | 357453.00 | 5790602.00 | 209.14 | -45.00 | 116.50 |
| JBL17-S10 | DDH | 120.0 | NAD83_18 | 357562.00 | 5790595.00 | 210.34 | -42.20 | 118.50 |
| JBL17-S11 | DDH | 120.0 | NAD83_18 | 357677.00 | 5790592.00 | 210.05 | -44.20 | 125.40 |
| JBL17-S12 | DDH | 120.0 | NAD83_18 | 357787.00 | 5790595.00 | 209.66 | -42.50 | 129.30 |
| JBL17-S13 | DDH | 120.0 | NAD83_18 | 358343.68 | 5789890.85 | 216.58 | -43.70 | 118.50 |
| JBL17-S14 | DDH | 120.0 | NAD83_18 | 358435.75 | 5789951.01 | 217.95 | -47.70 | 111.10 |
| JBL17-S15 | DDH | 120.0 | NAD83_18 | 358528.50 | 5790013.46 | 216.60 | -45.10 | 105.90 |
| JBL17-S16 | DDH | 120.0 | NAD83_18 | 358616.72 | 5790070.67 | 216.14 | -46.00 | 111.00 |
| JBL17-S17 | DDH | 120.0 | NAD83_18 | 359322.86 | 5789384.61 | 223.10 | -45.10 | 115.30 |
| JBL17-S18 | DDH | 123.0 | NAD83_18 | 359227.29 | 5789398.26 | 223.18 | -42.20 | 117.40 |
| JBL17-S19 | DDH | 120.0 | NAD83_18 | 359124.18 | 5789418.30 | 223.27 | -43.90 | 110.80 |

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|---|---|---|---|---|---|---|---|---|
| JBL17-S20 | DDH | 120.0 | NAD83_18 | 359030.10 | 5789440.14 | 222.74 | -44.30 | 114.40 |
| JBL17-S21 | DDH | 120.0 | NAD83_18 | 357344.00 | 5789183.00 | 213.45 | -45.10 | 100.30 |
| JBL17-S22 | DDH | 123.0 | NAD83_18 | 357569.00 | 5789133.00 | 212.94 | -45.50 | 106.30 |
| JBL17-S23 | DDH | 120.0 | NAD83_18 | 358442.00 | 5788750.00 | 210.10 | -44.50 | 102.80 |
| JBL17-S24 | DDH | 120.0 | NAD83_18 | 358228.00 | 5788794.00 | 208.48 | -48.10 | 110.20 |
| JBL17-S25 | DDH | 120.0 | NAD83_18 | 357901.00 | 5788868.00 | 208.73 | -45.10 | 115.50 |
| JBL17-S26 | DDH | 120.0 | NAD83_18 | 357687.00 | 5788920.00 | 209.25 | -42.60 | 134.00 |
| JBL17-S27 | DDH | 120.0 | NAD83_18 | 357466.00 | 5788969.00 | 209.76 | -46.10 | 116.30 |
| JBL17-S28 | DDH | 120.0 | NAD83_18 | 357246.00 | 5789020.00 | 213.47 | -42.80 | 109.00 |
| JBL17-S29 | DDH | 120.0 | NAD83_18 | 357050.00 | 5789054.00 | 212.90 | -40.60 | 129.90 |
| JBL17-S30 | DDH | 120.0 | NAD83_18 | 357036.00 | 5788848.00 | 209.51 | -42.00 | 116.30 |
| JBL17-S31 | DDH | 120.0 | NAD83_18 | 357264.00 | 5788802.00 | 208.64 | -42.80 | 114.00 |
| JBL17-S32 | DDH | 120.0 | NAD83_18 | 357473.00 | 5788752.00 | 206.81 | -46.20 | 118.60 |
| JBL18-160 | DDH | 201.0 | NAD83_18 | 360694.30 | 5788573.76 | 206.58 | -44.70 | 119.20 |
| JBL18-161 | DDH | 150.0 | NAD83_18 | 360602.47 | 5788547.14 | 206.41 | -45.80 | 112.10 |
| JBL18-162 | DDH | 207.0 | NAD83_18 | 360501.78 | 5788628.08 | 206.47 | -45.00 | 112.00 |
| JBL18-163 | DDH | 201.0 | NAD83_18 | 360303.12 | 5788665.92 | 206.69 | -45.80 | 115.30 |
| JBL18-164 | DDH | 201.0 | NAD83_18 | 360103.49 | 5788708.06 | 207.36 | -44.40 | 114.30 |
| JBL18-165 | DDH | 198.0 | NAD83_18 | 361303.02 | 5788597.73 | 210.86 | -45.90 | 114.70 |
| JBL18-166 | DDH | 150.0 | NAD83_18 | 361336.13 | 5788661.46 | 205.05 | -45.30 | 114.80 |
| JBL18-167 | DDH | 150.0 | NAD83_18 | 361333.38 | 5788528.68 | 210.60 | -46.10 | 109.80 |
| JBL18-168 | DDH | 201.0 | NAD83_18 | 361101.54 | 5788588.37 | 204.42 | -44.80 | 122.80 |
| JBL18-169 | DDH | 201.0 | NAD83_18 | 360880.67 | 5788587.31 | 206.19 | -46.30 | 122.40 |
| JBL18-GT01 | DDH | 76.7 | NAD83_18 | 357237.71 | 5789820.82 | 213.62 | -65.90 | 223.70 |
| JBL18-GT02 | DDH | 75.0 | NAD83_18 | 357299.18 | 5789899.31 | 210.85 | -65.90 | 348.50 |
| JBL18-GT03 | DDH | 75.0 | NAD83_18 | 357410.36 | 5789870.83 | 211.01 | -64.90 | 156.90 |
| JBL18-GT04 | DDH | 102.0 | NAD83_18 | 357842.00 | 5789660.00 | 214.39 | -65.10 | 4.40 |
| JBL18-GT05 | DDH | 123.0 | NAD83_18 | 357798.14 | 5789556.61 | 225.45 | -67.90 | 249.10 |
| JBL18-GT06 | DDH | 99.0 | NAD83_18 | 358040.48 | 5789557.12 | 220.45 | -65.30 | 36.20 |
| JBL18-GT07 | DDH | 99.0 | NAD83_18 | 357978.00 | 5789479.01 | 223.53 | -65.90 | 215.10 |
| JBL18-GT08 | DDH | 99.0 | NAD83_18 | 358293.95 | 5789501.66 | 220.70 | -66.20 | 39.20 |
| JBL18-GT09 | DDH | 98.5 | NAD83_18 | 358291.12 | 5789407.57 | 226.45 | -65.70 | 205.60 |
| JBL18-GT10 | DDH | 125.0 | NAD83_18 | 358531.19 | 5789475.21 | 216.14 | -65.00 | 32.90 |
| JBL18-GT11 | DDH | 150.0 | NAD83_18 | 358473.07 | 5789297.75 | 232.08 | -64.70 | 206.20 |
| JBL18-GT12 | DDH | 147.0 | NAD83_18 | 358717.76 | 5789370.25 | 227.97 | -65.70 | 29.50 |
| JBL18-GT13 | DDH | 150.0 | NAD83_18 | 358638.31 | 5789222.77 | 235.48 | -66.70 | 199.90 |
| JBL18-GT14 | DDH | 145.7 | NAD83_18 | 358830.81 | 5789229.48 | 247.07 | -63.90 | 117.40 |
| JBL18-M01-D12 | DDH | 69.0 | NAD83_18 | 358077.87 | 5789460.08 | 223.58 | -90.00 | 0.00 |



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|---|---|---|---|---|---|---|---|---|
| JBL18-M02-D12 | DDH | 84.0 | NAD83_18 | 358089.36 | 5789513.64 | 221.00 | -90.00 | 0.00 |
| JBL18-M03-D14 | DDH | 75.0 | NAD83_18 | 357842.91 | 5789586.51 | 227.92 | -90.00 | 0.00 |
| JBL18-M06-D17 | DDH | 81.0 | NAD83_18 | 357703.09 | 5789676.02 | 213.55 | -90.00 | 0.00 |
| JBL18-M07-D11 | DDH | 81.0 | NAD83_18 | 358273.04 | 5789516.08 | 218.40 | -90.00 | 0.00 |
| JBL18-M08-D9.2 | DDH | 60.7 | NAD83_18 | 358501.19 | 5789387.10 | 235.73 | -70.00 | 290.00 |
| JBL18-M08-D9.2A | DDH | 42.0 | NAD83_18 | 358501.81 | 5789386.75 | 235.80 | -70.00 | 290.00 |
| JBL18-M09-D8.7 | DDH | 63.0 | NAD83_18 | 358550.00 | 5789326.75 | 238.00 | -65.00 | 110.00 |
| JBL18-M09-D8.7A | DDH | 45.0 | NAD83_18 | 358549.00 | 5789329.00 | 237.72 | -80.00 | 110.00 |
| JBL18-M10-D8.3 | DDH | 63.0 | NAD83_18 | 358713.12 | 5789284.91 | 240.12 | -70.00 | 290.00 |
| JBL18-M10-D8.3A | DDH | 45.0 | NAD83_18 | 358711.00 | 5789288.00 | 240.15 | -70.00 | 290.00 |
| JBL18-M10-D8.3B | DDH | 48.0 | NAD83_18 | 358735.72 | 5789309.56 | 239.83 | -70.00 | 290.00 |
| JBL18-M11-D7.6 | DDH | 90.0 | NAD83_18 | 358821.08 | 5789255.81 | 244.78 | -70.00 | 290.00 |
| JBL18-M12-D7.2 | DDH | 72.0 | NAD83_18 | 358896.92 | 5789200.43 | 249.37 | -70.00 | 290.00 |
| JBL18-M12-D7.2A | DDH | 30.0 | NAD83_18 | 358909.00 | 5789224.00 | 247.89 | -70.00 | 290.00 |
| JBL18-M12-D7.2B | DDH | 15.0 | NAD83_18 | 358909.00 | 5789224.00 | 247.89 | -80.00 | 290.00 |
| JBL18-M13-D6.2 | DDH | 30.0 | NAD83_18 | 358969.00 | 5789120.00 | 242.56 | -65.00 | 290.00 |
| JBL18-M13-D6.2A | DDH | 30.0 | NAD83_18 | 358974.00 | 5789099.00 | 241.75 | -70.00 | 290.00 |
| JBL18-M13-D6.2B | DDH | 12.0 | NAD83_18 | 358980.95 | 5789088.90 | 241.67 | -70.00 | 290.00 |
| JBL18-M13-D6.2C | DDH | 39.0 | NAD83_18 | 358980.43 | 5789089.12 | 241.80 | -50.00 | 290.00 |
| JBL18-M13-D6.2D | DDH | 33.0 | NAD83_18 | 358980.21 | 5789089.32 | 241.85 | -45.00 | 290.00 |
| JBL18-M13-D6.2E | DDH | 27.0 | NAD83_18 | 358954.14 | 5789124.76 | 244.73 | -45.00 | 200.00 |
| JBL18-M13-D6.2F | DDH | 9.0 | NAD83_18 | 358954.36 | 5789125.64 | 244.42 | -65.00 | 200.00 |
| JBL18-M14-D5.3 | DDH | 27.0 | NAD83_18 | 359097.53 | 5789076.25 | 244.02 | -80.00 | 290.00 |
| JBL18-M14-D5.3A | DDH | 54.0 | NAD83_18 | 359097.15 | 5789076.38 | 244.07 | -70.00 | 290.00 |
| JBL18-M14-D5.3B | DDH | 15.0 | NAD83_18 | 359100.15 | 5789080.08 | 243.83 | -80.00 | 290.00 |
| JBL18-M14-D5.3C | DDH | 15.0 | NAD83_18 | 359099.87 | 5789080.13 | 243.93 | -70.00 | 290.00 |
| JBL18-M15-D12 | DDH | 39.0 | NAD83_18 | 358097.80 | 5789443.56 | 225.88 | -90.00 | 0.00 |
| JBL18-S33 | DDH | 120.0 | NAD83_18 | 357686.00 | 5788708.00 | 206.35 | -42.00 | 112.80 |
| JBL18-S34 | DDH | 120.0 | NAD83_18 | 357914.00 | 5788655.00 | 206.22 | -45.60 | 109.10 |
| JBL18-S35 | DDH | 120.0 | NAD83_18 | 358227.00 | 5788577.00 | 205.93 | -45.40 | 115.70 |
| JBL18-S36 | DDH | 120.0 | NAD83_18 | 358351.00 | 5788345.00 | 203.09 | -41.50 | 113.80 |
| JBL18-S37 | DDH | 120.0 | NAD83_18 | 358027.00 | 5788414.00 | 208.55 | -39.90 | 114.80 |
| JBL18-S38 | DDH | 120.0 | NAD83_18 | 357809.00 | 5788468.00 | 205.50 | -45.00 | 108.70 |
| JBL18-S39 | DDH | 120.0 | NAD83_18 | 357593.00 | 5788516.00 | 203.95 | -49.90 | 118.50 |
| JBL18-S40 | DDH | 120.0 | NAD83_18 | 357372.00 | 5788567.00 | 204.95 | -45.80 | 113.50 |
| JBL18-S41 | DDH | 120.0 | NAD83_18 | 357163.00 | 5788613.00 | 206.29 | -42.70 | 113.70 |
| JBL18-S42 | DDH | 120.0 | NAD83_18 | 356946.00 | 5788663.00 | 207.30 | -42.90 | 117.90 |
| JBL18-S43 | DDH | 120.0 | NAD83_18 | 356731.00 | 5788714.00 | 208.52 | -43.60 | 115.30 |
| JBL18-S44 | DDH | 120.0 | NAD83_18 | 356508.00 | 5788764.00 | 209.24 | -41.50 | 120.90 |
| JBL18-S45 | DDH | 120.0 | NAD83_18 | 356526.00 | 5788558.00 | 207.70 | -40.60 | 110.60 |
| JBL18-S46 | DDH | 120.0 | NAD83_18 | 356748.00 | 5788509.00 | 206.77 | -43.00 | 114.80 |
| JBL18-S47 | DDH | 120.0 | NAD83_18 | 358099.00 | 5790381.00 | 209.56 | -45.60 | 114.90 |
| JBL18-S48 | DDH | 120.0 | NAD83_18 | 358278.00 | 5790505.00 | 210.00 | -44.40 | 114.00 |
| JBL18-S49 | DDH | 120.0 | NAD83_18 | 358453.00 | 5790633.00 | 209.44 | -44.40 | 121.80 |
| JBL18-S50 | DDH | 120.0 | NAD83_18 | 358658.00 | 5790759.00 | 208.42 | -42.30 | 113.80 |
| JBL18-S51 | DDH | 126.0 | NAD83_18 | 355993.00 | 5790098.00 | 213.47 | -45.00 | 115.00 |
| JBL18-S52 | DDH | 120.0 | NAD83_18 | 356719.00 | 5790540.00 | 207.51 | -44.60 | 123.20 |
| JBL18-S53 | DDH | 120.0 | NAD83_18 | 355990.00 | 5790500.00 | 203.87 | -45.00 | 115.00 |
| JBL18-S54 | DDH | 120.0 | NAD83_18 | 355101.00 | 5790491.00 | 203.60 | -38.10 | 127.20 |
| JBL18-S55 | DDH | 120.0 | NAD83_18 | 355045.00 | 5790078.00 | 212.59 | -39.10 | 126.20 |

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