Project Overview
The 100% owned Separation Rapids property is host to a “complex-type” lithium-cesium-tantalum (LCT) pegmatite deposit, unusual in its enrichment in the rare, high purity lithium mineral petalite. Separation Rapids is a potential producer of lithium minerals for glass and ceramics and lithium chemicals for the lithium ion battery market. The property covers a total of 6,000 acres and is situated close to road, rail and power infrastructure approximately 70 km north of Kenora, Ontario, Canada.

Avalon’s Sustainable Strategy

Minimizing environmental impacts: Utilize renewable energy and maximize use of the ore body by creating markets for by-products

Maximizing benefits: for local Indigenous communities

Product design: Working with our customers to create quality products to serve their needs at attractive prices

Innovative metallurgy: Designing an efficient process flowsheet to produce the best quality products at the lowest cost, while minimizing waste generation and recycling of reagents

Staged development: Start with a demonstration plant to prove process and scale up operation after products specs are optimized

PEA Development Model
The current development model results in a small environmental footprint, including low GHG emissions and almost non-existent air emissions.

There are no anticipated environmental impacts of concern, with the mineral deposit and waste rock being non-toxic and non-acid generating and minimal water discharge being anticipated.

PEA (August 2018) highlights include:

- Simplified business model with initial focus on production of lithium mineral concentrates for glass and ceramics
- Production of 71,500 tpa petalite, 11,800 tpa lepidolite
- Initial CAPEX: C$77.7m (475,000 tpa mill capacity)
- Feldspar circuit added in Year 6 (C$13.7m CAPEX)
- 20 year operational life
- Average Annual Revenues: C$90m
- Average Annual Costs: C$60m
- NPV pre-tax (8% discount rate): $156m
- IRR (pre-tax): 27.1%
- IRR (post tax): 22.7%

The PEA is preliminary in nature, includes Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.
Lithium minerals enable innovation in high strength glass products

Lithium creates thermal shock resistance in glass and ceramic products, such as glass-ceramic stovetops, Corningware® cookware and fireplace shields.

Lithium additions reduce the melting temperature and lower GHG emissions from the furnace, and can strengthen traditional glass formulations to extend the containers’ life.

Lithium minerals can also be added to high strength glass products such as computer screens and automobiles.

Avalon can offer two petalite products: one at the standard grade of 4.2% Li₂O and a second higher grade product (>4.5% Li₂O) with very low impurity content.