

# Clayton Valley Lithium Project

## Resource Estimate NI 43-101 Technical Report Clayton Valley Lithium Project Esmeralda County, Nevada, USA

Prepared for:



Prepared by:



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This Technical Report on the Clayton Valley Lithium Project is submitted to Cypress Development Corp. and is effective May 1, 2018.

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## **ABBREVIATIONS AND ACRONYMS**

µm	microns
2-D	2-dimensional
3-D	3-dimensional
AAS	atomic absorption spectroscopy
BLM	Bureau of Land Management
CH <sub>3</sub> COOH	acetic acid
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
cm	centimeter
CMS	Continental Metallurgical Services, LLC
Cypress	Cypress Development Corp.
GRE	Global Resource Engineering Ltd.
H <sub>2</sub> SO <sub>4</sub>	sulfuric acid
Hazen	Hazen Research Inc.
HCl	hydrochloric acid
HNO <sub>3</sub>	nitric acid
ICP-AES	inductively coupled plasma atomic emission spectroscopy
ICP-MS	inductively coupled plasma mass spectrometry
kg	kilogram
km <sup>2</sup>	square kilometers
km <sup>3</sup>	cubic kilometers
kWhr/t	kilowatt-hours/tonne
LCE	lithium carbonate equivalent
Li	lithium
LiCO <sub>3</sub>	lithium carbonate
MMSA	Mining and Metallurgical Society of America
NAA	neutron activation analysis

NaOH	sodium hydroxide
NI	National Instrument
NSR	Net Smelter Return
PEA	Preliminary Economic Assessment
PLS	pregnant leach solution
ppm	parts per million
QA/QC	quality assurance/quality control
QP	qualified person
SG	specific gravity
SME	Society of Mining, Metallurgy & Exploration
USGS	United States Geological Survey
XRD	X-ray Diffraction



## **1.0 SUMMARY**

Global Resource Engineering was retained by Cypress Development Corp. (Cypress) to prepare a National Instrument (NI) 43-101 compliant Technical Report and Mineral Resource Estimate for the Clayton Valley Lithium Project, Nevada.

### **1.1 Location and Property Description**

The Clayton Valley Lithium Project (the project) is centered near 452800 m East, 4178200 m North, UTM NAD 83, Zone 11 North datum, in Esmeralda County, Nevada. The project's location is 220 miles south of Reno, Nevada. The regional gold mining town of Tonopah is 40 miles northeast of the project and the small community of Silver Peak lies 10 miles west of the project. The project lies entirely within T2S, R40E, Mt. Diablo Meridian. The project is accessed from Tonopah, Nevada, by traveling south on US Highway 95, then west on Silver Peak Road.

The project is located within the Great Basin physiographic region and, more precisely, within the Walker Lane province of the western Great Basin. The Clayton Valley is a flat-bottomed salt basin that is surrounded by a complete pattern of mountain ranges. Broad, low passes lead into the basin from the north and east.

On the project itself, the terrain is dominated by mound-like outcrops of mineralized mudstones which are cut by dry, gravel wash bottoms. Access on the project is excellent due to the overall low relief of the terrain.

The project comprises the contiguous Dean and Glory claim groups and consists of 111 placer mining claims and 150 overlapping lode mining claims, all 100% owned by Cypress. The claims lie within portions of surveyed sections 14, 15, 16, 17, 20, 21, 22, 23, 27, 28 and 33 of T2S, R40E in the central and eastern portions of the Clayton Valley, Nevada.

Placer claims were staked first and cover the entire project, these claims vary in size from 20 to 80 acres and were staked as even divisions of a legal section. The placer claims cover 4,220 acres and provide Cypress with the mineral rights and the rights to any lithium brines present. The claims are subject to a 3% net smelter royalty (NSR) with 2% buy out for \$2 million in favor of the original property vendor. The claims require annual filing of Intent to Hold and cash payments to the BLM and Esmeralda County totaling \$167 per 20 acres. Lode claims were staked over the placer claims in the central and eastern portions of the project and grant Cypress the rights to all minerals considered lode in nature. The lode claims are a maximum of 600 x 1,500 feet in size or about 20.5 acres each and cover an area of 3,013 acres. The claims require annual filing of Intent to Hold and cash payments to the BLM and Esmeralda County totaling \$167 per claim. The claims are subject to a 3% NSR with 2% buy out for \$2million in favor of the original property vendor.

### **1.2 Accessibility and Climate**

The project can be reached from Tonopah, Nevada by traveling south on US Highway 95, then west on Silver Peak Road or north approximately 5 miles north of Goldfield, Nevada (county seat).

The climate of the Clayton Valley is hot in summer, with average high temperatures around 100 °F and cool in the winter with average daily lows of 15 to 30 °F.

At the project itself, the terrain is dominated by mound-like outcrops of mineralized mudstones, which are cut by dry, gravel wash bottoms. Access on the property is excellent due to the overall low relief of the terrain.

The project is in a region of active extraction of lithium brines and open pit gold mining. The immediately adjacent Silver Peak Lithium Production Complex has been in production since the 1960s. The project lies near power lines and regional towns that service the mining industry.

Topo was provided by Stryx Imaging via drone photo survey in February 2018.

### **1.3 History**

The project shows signs of limited historical exploration in the form of old weathered pits and trenches, and rare old piled stone rock mound claim corners. The area is roughly mapped and is shown as Esmeralda Formation sedimentary rocks and volcanic rocks on 1960s era geologic maps. DB placer claims staked by Rodinia Minerals Inc. covered the entire project area in the past but were dropped.

The United States Geological Survey (USGS) has worked in the mudstones on several occasions with limited sampling. An assay of >2,000 ppm Li was noted on the west wide of Angel Island from work done in the 1970s. The majority of USGS work in the basin was focused on lithium brine investigations.

The Nevada Bureau of Mines and Geology did work on the mineralized mudstones found on the Glory claims. The ongoing work involves XRD work on thin pumice layers within the exposed mudstone package.

There is no indication of any drilling occurring on the project prior to Cypress' efforts in 2017. Drilling by Noram Ventures in an area near the northeast corner of the project was done in winter 2016-2017. Spearmint Resources drilled three holes south of the property in 2018.

A series of bench like open cuts into mudstone units have occurred along the west flank of Angel Island. These operations have occurred in the recent past on Cypress placer claims in the southwest portion of the project but are largely located on private lands owned by Albemarle Corp.

### **1.4 Geology and Mineralization**

The Clayton Valley is a closed basin near the southwestern margin of the Basin and Range geophysiographic province of western Nevada. Horst and graben normal faulting is a dominant structural element of the Basin and Range and is thought to have occurred in conjunction with deformation due to lateral shear stress, resulting in disruption of large-scale topographic features.

Clayton Valley is the lowest in elevation of a series of intermediate size playa filled valleys, with a playa floor of about 100 square kilometers (km<sup>2</sup>) that receives surface drainage from an area of about 1,300 km<sup>2</sup>. The valley is fault-bounded on all sides, delineated by the Silver Peak Range to the west, Clayton Ridge and the Montezuma Range to the east, the Palmetto Mountains and Silver Peak Range to the south, and Big Smokey Valley, Alkali Flat, Paymaster Ridge, and the Weepah Hills to the north.



Multiple wetting and drying periods during the Pleistocene resulted in the formation of lacustrine deposits, salt beds, and lithium-rich brines in the Clayton Valley basin. Extensive diagenetic alteration of vitric material to zeolites and clay minerals has taken place in the tuffaceous sandstone and shale of the Esmeralda Formation, and anomalously high lithium concentrations accompany the alteration. The lacustrine sediment near the center of pluvial lakes in Clayton Valley is generally green to black calcareous mud.

The western portion of the project area is dominated by the uplifted basement rocks of Angel Island, while the southern and eastern portions are dominated by uplifted, lacustrine sedimentary units of the Esmeralda Formation. Within the project area, the Esmeralda Formation is comprised of fine grained sedimentary and tuffaceous units, with some occasionally pronounced local undulation and minor faulting. The resulting topography consists of elongated, rounded ridges of exposed Esmeralda Formation separated by washes and gullies filled with alluvial and colluvial gravels and fine sediment. The ridge tops are commonly mantled weathered remnants of rock washed down from the surrounding highlands.

Significant lithium concentrations are encountered in the sedimentary units of the Esmeralda within the project area at ground surface and to depths of up to 124 meters. The lithium bearing sediments primarily occur as calcareous and salty interbedded tuffaceous mudstones and claystones. The overall mineralized sedimentary package is a laterally and vertically extensive, roughly tabular zone of interbedded mudstone and claystone with at least two prominent oxidation horizons in the subsurface. The mineralized zone consists of three primary units: an “upper” olive-colored mudstone, “middle” blue mudstone/claystone, and “lower” olive-colored mudstone. The middle (reduced) portion of the mineralized zone represents most of the overall mineralized sedimentary package. The upper and lower mudstone units are oxidized to an olive-green color, while the middle mudstone/claystone is reduced and blue, black, or grey in color in fresh drill core. The three primary units are generally overlain by tuffaceous mudstone and underlain by increasingly sandy mudstones. Elevated lithium concentrations occur in all the uplifted lacustrine strata encountered, but lithium concentrations are notably higher and more persistent in the three primary units.

## **1.5 Deposit Type**

The project is reasonably well represented by the USGS preliminary deposit model, which describes the most readily ascertainable attributes of such deposits as light-colored, ash-rich, lacustrine rocks containing swelling clays, occurring within hydrologically closed basins with some abundance of proximal silicic volcanic rocks. The geometry of the Clayton Valley deposit is roughly tabular, with the lithium concentrated in gently dipping, locally undulating, sedimentary strata of the Esmeralda Formation. The sedimentary units consist of interbedded calcareous, ash-rich mudstones and claystones, with interbeds of sandy and tuffaceous mudstone/siltstone and occasional poorly cemented sandstone. The lithium is largely concentrated within the mudstones and claystones, but elevated concentrations were recorded in a sandstone unit that underlies the fine-grained units.

## 1.6 Exploration

Surface samples of friable outcropping mudstone were collected by Cypress geologists over a 10-month period ending in October 2016. The samples were largely located in the eastern and southern portions of the project area.

In total, Cypress has submitted 634 soil and rock chip samples (28 of which were duplicate samples) for laboratory analysis by 33 element 4-acid inductively coupled plasma atomic emission spectroscopy (ICP-AES) and 35-element aqua regia atomic absorption spectroscopy (AAS). Analytical results indicate elevated lithium concentrations at ground surface over nearly the full extent of the area sampled. Assay values exceeding 2,000 ppm Li were returned for samples collected in the northern portion of the Glory claim block and from just west of the Angel Island fault, in the central portion of the project area.

Cypress has conducted general geologic surface mapping over the entire project area.

## 1.7 Drilling

Cypress conducted drilling exploration within the project area in 2017 and early 2018. A total of 23 vertical, NQ-size (1.87-in core diameter) core holes were drilled to date. Drill hole depths range from 33 to 129.5 meters (108 to 425 feet), totaling 1,904 meters drilled. Given the shallow depth of the holes, no downhole surveys were completed.

The drilling results generally indicate a particularly favorable section of ash-rich mudstones that extend to depths of up to approximately 120 meters, within which exists a strong, apparently planar, oxidation/reduction front.

While the drill holes are widely spaced, averaging 650 to 700 meters between holes, the lithium profile with depth is consistent from hole to hole. Unweighted lithium content averages 929.8 ppm for all 665 samples assayed, with a range of 116 to 2,240 ppm.

## 1.8 Mineral Processing and Metallurgical Testing

The preliminary process design for the Clayton Valley Lithium project is based on initial scoping tests conducted by SGS Canada in August of 2017 (DCH-5 Oxide and DCH-5 Reduced). These tests indicate the claystone minerals can be digested in dilute sulfuric acid, liberating the lithium as lithium sulfate.

The deposit is classified into two categories that include Oxidized and Reduced materials. Dilute sulfuric acid reached extractions as high as 76% from the oxidized material and 83.5% from the reduced sample. Although this test work is preliminary in nature, it does suggest that a dilute sulfuric acid leach is a viable method of extracting the lithium found at the project.

Additional test work was conducted by Continental Metallurgical Services, LLC (CMS) on the project (2018). In this test, a more detailed investigation of the metallurgy was undertaken on both the oxidized and reduced material (DCH-2 Oxide and DCH-2 Reduced).

Bond work index testing indicate the oxide and reduced samples have a work index of 1 to 1.5 kilowatt-hours/tonne (kWhr/t) and are categorized as very soft. Grinding may or may not be required to achieve liberation as the samples digested easily in water with minimal coarse solids present.

Flotation tests conducted with sodium oleate resulted in no upgrading of the lithium; there was an equal lithium grade in both the concentrate and tailings. De-sliming, as a form of upgrading, was also examined with the settled fraction containing 50% of the lithium in 24% of the overall mass.

Sulfuric acid leaching produced the best leach extraction, approaching or exceeding 70%. Significant magnesium and calcium also leached.

Currently Hazen Research Inc (Hazen) is conducting additional leach testing to further define the leaching kinetics associated with longer leach times at lower temperatures and acid dosages (DCH-16 Oxide and DCH-16 Reduced). Additional detailed test work is required to define the leaching parameters and reagent consumptions.

Preliminary tests were conducted related to the production of a final lithium product as lithium carbonate. Initial indications are that conventional sequential precipitation processes are capable of removing deleterious elements such as iron, aluminum, magnesium, and calcium prior to the precipitation of the final lithium carbonate. Lithium hydroxide and lithium carbonate production from sulfate leach solutions are well-defined processes.

## 1.9 Resource Estimation

Resource estimate results at cutoffs of 300, 600, 900, and 1,200 ppm are summarized in Table 1-1. This resource estimation includes data from 23 drill holes. At a cutoff of 300 ppm, the results of the estimate were an Indicated resource of 617.5 million kilograms (kg) of lithium within 696.6 million tonnes and an Inferred resource of 547.6 million kg lithium within 642.8 million tonnes. Within an initial pit area, at a cutoff of 300 ppm, there are 189.1 million kg lithium within 191.4 million tonnes in the Indicated category and 26.6 million kg lithium within 25.4 million tonnes of Inferred material (Table 1-2). The initial pit area contains resources sufficient to supply a 15,000 tonne per day operation for over 40 years.

Five to 10 additional holes are recommended in the initial pit area for resource conversion and development, with a goal of converting some of the Indicated resource to the Measured category and most of the Inferred resource to the Indicated or Measured categories.

### **Cautionary statements regarding inferred mineral resource estimates:**

*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 Reserves. Inferred resources are that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.*

**Table 1-1: Summary of Clayton Valley Lithium Project Preliminary Resource Estimate (1000s)**

Lithology	Tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm
	Indicated Resource @ 300 ppm Cutoff			Indicated Resource @ 600 ppm Cutoff			Indicated Resource @ 900 ppm Cutoff			Indicated Resource @ 1200 ppm Cutoff		
Upper Tuff	58,700	41,500	707	51,700	37,600	727	2,000	1,900	950	-	-	-
Upper Olive	148,300	133,000	897	148,300	133,000	897	64,700	67,700	1,046	-	-	-
Main Blue	220,500	238,400	1,081	220,500	238,400	1,081	190,300	213,100	1,120	22,500	28,000	1,244
Lower Olive	132,200	112,500	851	132,200	112,500	851	33,700	33,300	988	900	1,100	1,222
Hard Bottom	136,900	92,100	673	102,300	72,700	711	2,000	1,800	900	-	-	-
<b>Total</b>	<b>696,600</b>	<b>617,500</b>	<b>886</b>	<b>655,000</b>	<b>594,200</b>	<b>907</b>	<b>292,700</b>	<b>317,800</b>	<b>1,086</b>	<b>23,400</b>	<b>29,100</b>	<b>1,244</b>
	Inferred Resource @ 300 ppm Cutoff			Inferred Resource @ 600 ppm Cutoff			Inferred Resource @ 900 ppm Cutoff			Inferred Resource @ 1200 ppm Cutoff		
Upper Tuff	65,300	45,000	689	62,200	43,200	695	500	500	1,000	-	-	-
Upper Olive	112,400	99,300	883	112,400	99,300	883	43,200	44,600	1,032	-	-	-
Main Blue	190,700	196,800	1,032	190,700	196,800	1,032	150,200	163,200	1,087	5,600	6,800	1,214
Lower Olive	149,400	124,400	833	149,400	124,400	833	35,000	33,400	954	-	-	-
Hard Bottom	125,000	82,100	657	80,300	56,800	707	-	-	-	-	-	-
<b>Total</b>	<b>642,800</b>	<b>547,600</b>	<b>852</b>	<b>595,000</b>	<b>520,500</b>	<b>875</b>	<b>228,900</b>	<b>241,700</b>	<b>1,056</b>	<b>5,600</b>	<b>6,800</b>	<b>1,214</b>

**Table 1-2: Classified Mineral Resources in Initial Pit Area (1000s)**

Lithology	Tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm
	Indicated Resource @ 300 ppm Cutoff			Indicated Resource @ 600 ppm Cutoff			Indicated Resource @ 900 ppm Cutoff			Indicated Resource @ 1200 ppm Cutoff		
Upper Tuff	22,600	15,500	686	19,700	13,900	706	-	-	-	-	-	-
Upper Olive	37,400	35,400	947	37,400	35,400	947	17,500	18,400	1,051	-	-	-
Main Blue	88,000	102,900	1,169	88,000	102,900	1,169	88,000	102,900	1,169	16,200	20,300	1,253
Lower Olive	24,500	22,600	922	24,500	22,600	922	14,900	14,300	960	-	-	-
Hard Bottom	18,900	12,700	672	18,900	12,700	672	-	-	-	-	-	-
<b>Total</b>	<b>191,400</b>	<b>189,100</b>	<b>988</b>	<b>188,500</b>	<b>187,500</b>	<b>995</b>	<b>120,400</b>	<b>135,600</b>	<b>1,126</b>	<b>16,200</b>	<b>20,300</b>	<b>1,253</b>

Lithology	Tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm
	Inferred Resource @ 300 ppm Cutoff			Inferred Resource @ 600 ppm Cutoff			Inferred Resource @ 900 ppm Cutoff			Inferred Resource @ 1200 ppm Cutoff		
Upper Tuff	-	-	-	-	-	-	-	-	-	-	-	-
Upper Olive	<b>7,200</b>	<b>7,100</b>	<b>986</b>	7,200	7,100	986	5,400	5,500	1,019	-	-	-
Main Blue	<b>11,200</b>	<b>13,000</b>	<b>1,161</b>	11,200	13,000	1,161	11,200	13,000	1,161	800	1,000	1,250
Lower Olive	<b>7,000</b>	<b>6,500</b>	<b>929</b>	7,000	6,500	929	6,000	5,600	933	-	-	-
Hard Bottom	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>25,400</b>	<b>26,600</b>	<b>1,047</b>	25,400	26,600	1,047	22,600	24,100	1,066	800	1,000	1,250



## 2.0 INTRODUCTION

As requested by Cypress Development Corp. (Cypress), Global Resource Engineering (GRE) has prepared this National Instrument (NI) 43-101 Mineral Resource Estimate Technical Report for the Clayton Valley Lithium Project, Nevada, based on data collected from 2015 to present. This NI 43-101 Technical Report includes resources on the contiguous Dean and Glory claim blocks, which are referred to in this Technical Report as the “Clayton Valley Lithium Project.”

Cypress previously published a NI 43-101 Technical Report summarizing exploration drilling results and other relevant data (Cypress Development Corp., 2018) for the Dean claim blocks only.

The Qualified Persons for this report are Terre A. Lane, J. Todd Harvey, Hamid Samari, and J. J. Brown of GRE.

### 2.1 Scope of Work

The scope of work undertaken by GRE is to prepare a Mineral Resource Estimate for the Clayton Valley Lithium Project (the project) and prepare recommendations on further work required to advance the project to the Preliminary Economic Assessment (PEA) stage.

### 2.2 Qualified Persons

The Qualified Persons (QP) responsible for this report are:

- Terre A. Lane, Mining and Metallurgical Society of America (MMSA) 01407QP, Society for Mining, Metallurgy & Exploration (SME) Registered Member 4053005, Principal Mining Engineer, GRE
- J. Todd Harvey, PhD, QP, Member SME Registered Member 4144120, Director of Process Engineering, GRE
- Hamid Samari, PhD, QP, MMSA #01519QP
- J. J. Brown, QP, SME Registered Member 4168244, PG

Practices consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) (2010) were applied to the generation of this Resource Estimate.

Ms. Lane, Dr. Harvey, Dr. Samari, and Ms. Brown are collectively referred to as the “authors” of this Resource Estimate. Ms. Brown visited the project during February 6-9, 2018. In addition to their own work, the authors have made use of information from other sources and have listed these sources in this document under “References.”

Table 2-1 identifies QP responsibility for each section of this report.

**Table 2-1 List of Contributing Authors**

Section	Section Name	Qualified Person
1	Summary	ALL
2	Introduction	ALL
3	Reliance on Other Experts	ALL
4	Property Description and Location	Terre Lane

Section	Section Name	Qualified Person
5	Accessibility, Climate, Local Resources, Infrastructure, and Physiography	Terre Lane
6	History	Terre Lane
7	Geological Setting and Mineralization	J. J. Brown
8	Deposit Types	J. J. Brown
9	Exploration	J. J. Brown
10	Drilling	J. J. Brown
11	Sample Preparation, Analyses and Security	J. J. Brown
12	Data Verification	J. J. Brown
13	Mineral Processing and Metallurgical Testing	J. Todd Harvey
14	Mineral Resource Estimates	Terre Lane, Hamid Samari
15	Mineral Reserve Estimates	Terre Lane
16	Mining Methods	Terre Lane
17	Recovery Methods	J. Todd Harvey
18	Project Infrastructure	Terre Lane
19	Market Studies and Contracts	Terre Lane
20	Environmental Studies, Permitting and Social or Community Impact	Terre Lane
21	Capital and Operating Costs	Terre Lane
22	Economic Analysis	Terre Lane
23	Adjacent Properties	Terre Lane
24	Other Relevant Data and Information	ALL
25	Interpretation and Conclusions	ALL
26	Recommendations	ALL
27	References	ALL

Note: Where multiple authors are cited, refer to author certificate for specific responsibilities.

## 2.3 Sources of Information

Information provided by Cypress included:

- Drill hole records
- Project history details
- Sampling protocol details
- Geological and mineralization setting
- Data, reports, and opinions from third-party entities
- Lithium assays from original records and reports
- Metallurgical reports

## 2.4 Units

All measurements used for the project are metric units unless otherwise stated. Tonnages are in metric tonnes, and grade is reported as parts per million (ppm) unless otherwise noted.

### **3.0 RELIANCE ON OTHER EXPERTS**

The authors relied on statements by Cypress concerning geological and exploration matters in Sections 7.0, 8.0, and 9.0, mineral rights ownership data and legal and environmental matters included in Sections 4.0 and 5.0 of this report. All mineral rights owned by Cypress are the result of the Mining Law of 1872 and are on public lands administered by the BLM out of the Tonopah Field Office.

The authors have not independently conducted any title or other searches, but have relied on Cypress for information on the status of claims, property title, agreements, permit status, and other pertinent conditions.

The authors have reviewed and incorporated reports and studies as described within this Report, and have adjusted information that required amending.

## 4.0 PROPERTY DESCRIPTION AND LOCATION

### 4.1 Location

The project is centered near 452800m East, 4178200m North, UTM NAD 83, Zone 11 North datum, in central Esmeralda County, Nevada. The location is 220 miles southeast of Reno, Nevada (Figure 4-1). The regional gold mining town of Tonopah is about 40 miles northeast of the project and the small community of Silver Peak lies 10 miles west of the project. The project lies entirely within T2S, R40E, Mt. Diablo Meridian. The project is accessed from Tonopah, Nevada, by traveling 22 miles south on US Highway 95, then 20 miles west on Silver Peak Road.

Figure 4-1: Project Location Map



## 4.2 Mineral Rights Disposition

The project consists of 111 placer mining claims and 150 overlapping lode mining claims, all 100% owned by Cypress. The claims lie within portions of surveyed sections 14, 15, 16, 17, 20, 21, 22, 23, 27, 28 and 33 of T2S, R40E in the central and eastern portions of the Clayton Valley, Nevada.

Cypress holds placer claims covering the entire project area. After initial work on the project, Cypress elected to stake lode claims over all the sedimentary basin it controls. This was done to insure company control of all mineral rights associated with its project.

The placer claims vary in size from 20 to 80 acres and were staked as even divisions of a legal section, as required under placer mine claim regulations. The claims cover 4,220 acres and provide Cypress with the rights to lithium brines that may exist at the project and the mineral rights to the mudstone-hosted lithium discovered to date. The claims are subject to a 3% NSR with 2% buy out for \$2 million in favor the original property vendor. The claims require annual filing of Intent to Hold and cash payments to the BLM and Esmeralda County totaling \$167 per 20 acres. Table 4-1 lists the Cypress federal placer claims at the project, and Figure 4-2 and Figure 4-3 show the locations of the claims.

**Table 4-1: Clayton Valley Lithium Project Placer Claims**

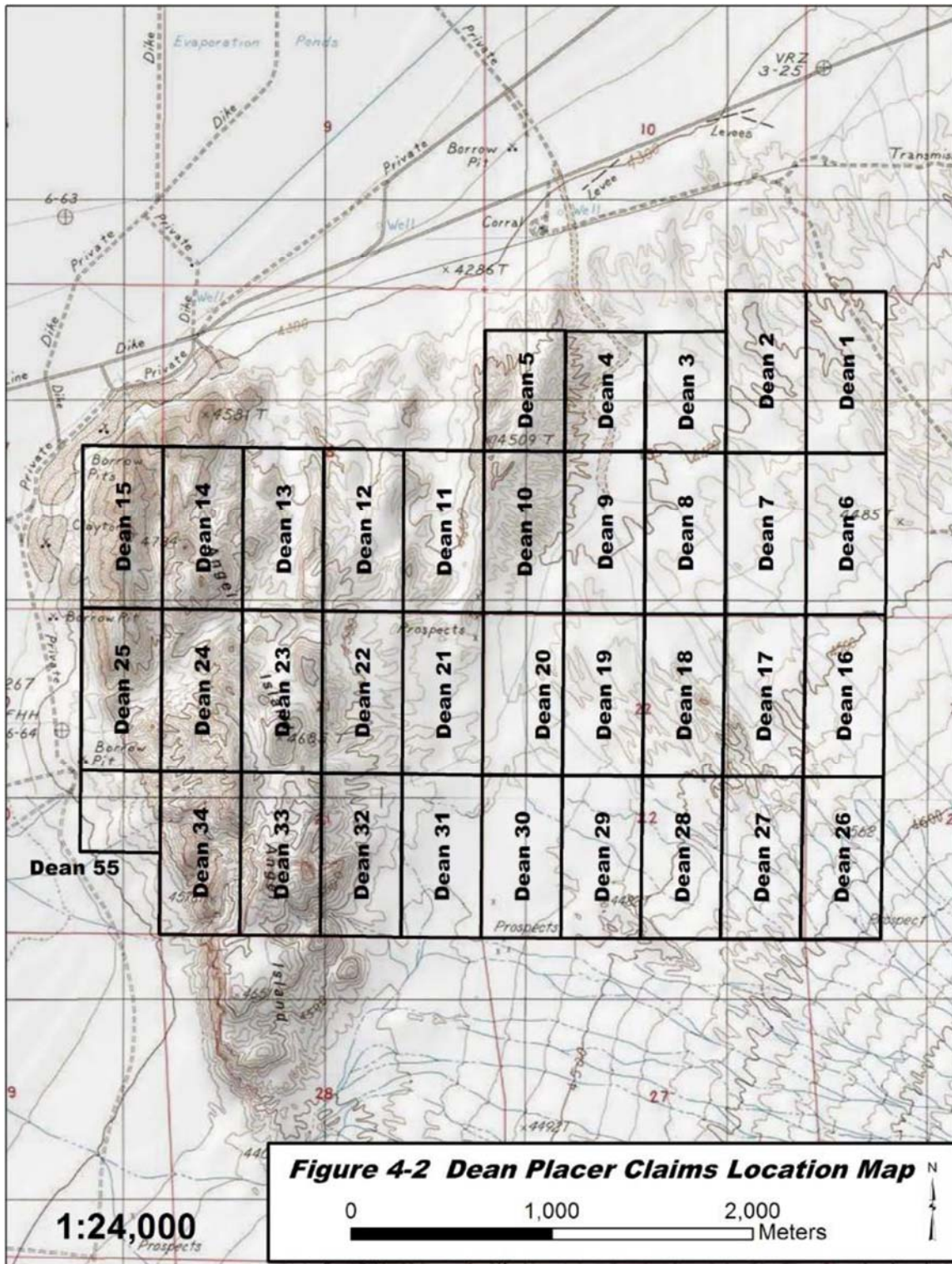
Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1119079	ANGEL 1	20	PLACER	ACTIVE
NMC1119080	ANGEL 2	20	PLACER	ACTIVE
NMC1119081	ANGEL 3	20	PLACER	ACTIVE
NMC1119082	ANGEL 4	20	PLACER	ACTIVE
NMC1119083	ANGEL 5	20	PLACER	ACTIVE
NMC1119084	ANGEL 6	20	PLACER	ACTIVE
NMC1119085	ANGEL 7	20	PLACER	ACTIVE
NMC1119086	ANGEL 8	20	PLACER	ACTIVE
NMC1119087	ANGEL 9	20	PLACER	ACTIVE
NMC1119088	ANGEL 10	20	PLACER	ACTIVE
NMC1119089	ANGEL 11	20	PLACER	ACTIVE
NMC1119046	GLORY 1	20	PLACER	ACTIVE
NMC1119047	GLORY 2	20	PLACER	ACTIVE
NMC1119048	GLORY 3	20	PLACER	ACTIVE
NMC1119049	GLORY 4	20	PLACER	ACTIVE
NMC1119050	GLORY 5	20	PLACER	ACTIVE
NMC1119051	GLORY 6	20	PLACER	ACTIVE
NMC1119052	GLORY 7	20	PLACER	ACTIVE
NMC1119053	GLORY 8	20	PLACER	ACTIVE
NMC1119054	GLORY 9	20	PLACER	ACTIVE
NMC1119055	GLORY 10	20	PLACER	ACTIVE
NMC1119056	GLORY 11	20	PLACER	ACTIVE
NMC1119057	GLORY 12	20	PLACER	ACTIVE
NMC1119058	GLORY 13	20	PLACER	ACTIVE
NMC1119059	GLORY 14	20	PLACER	ACTIVE
NMC1119060	GLORY 15	20	PLACER	ACTIVE



Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1119061	GLORY 16	20	PLACER	ACTIVE
NMC1119062	GLORY 17	20	PLACER	ACTIVE
NMC1119063	GLORY 18	20	PLACER	ACTIVE
NMC1119064	GLORY 19	20	PLACER	ACTIVE
NMC1119065	GLORY 21	20	PLACER	ACTIVE
NMC1119066	GLORY 22	20	PLACER	ACTIVE
NMC1119067	GLORY 23	20	PLACER	ACTIVE
NMC1119068	GLORY 24	20	PLACER	ACTIVE
NMC1119069	GLORY 25	20	PLACER	ACTIVE
NMC1119070	GLORY 26	20	PLACER	ACTIVE
NMC1119071	GLORY 29	20	PLACER	ACTIVE
NMC1119072	GLORY 30	20	PLACER	ACTIVE
NMC1119073	GLORY 31	20	PLACER	ACTIVE
NMC1119074	GLORY 32	20	PLACER	ACTIVE
NMC1119075	GLORY 37	20	PLACER	ACTIVE
NMC1119076	GLORY 38	20	PLACER	ACTIVE
NMC1119077	GLORY 39	20	PLACER	ACTIVE
NMC1119078	GLORY 40	20	PLACER	ACTIVE
NMC1120318	DEAN 1	80	PLACER	ACTIVE
NMC1120319	DEAN 2	80	PLACER	ACTIVE
NMC1120320	DEAN 3	60	PLACER	ACTIVE
NMC1120321	DEAN 4	60	PLACER	ACTIVE
NMC1120322	DEAN 5	60	PLACER	ACTIVE
NMC1120323	DEAN 6	80	PLACER	ACTIVE
NMC1120324	DEAN 7	80	PLACER	ACTIVE
NMC1120325	DEAN 8	80	PLACER	ACTIVE
NMC1120326	DEAN 9	80	PLACER	ACTIVE
NMC1120327	DEAN 10	80	PLACER	ACTIVE
NMC1120328	DEAN 11	80	PLACER	ACTIVE
NMC1120329	DEAN 12	80	PLACER	ACTIVE
NMC1120330	DEAN 13	80	PLACER	ACTIVE
NMC1120331	DEAN 14	80	PLACER	ACTIVE
NMC1120332	DEAN 15	80	PLACER	ACTIVE
NMC1120333	DEAN 16	80	PLACER	ACTIVE
NMC1120334	DEAN 17	80	PLACER	ACTIVE
NMC1120335	DEAN 18	80	PLACER	ACTIVE
NMC1120336	DEAN 19	80	PLACER	ACTIVE
NMC1120337	DEAN 20	80	PLACER	ACTIVE
NMC1120338	DEAN 21	80	PLACER	ACTIVE
NMC1120339	DEAN 22	80	PLACER	ACTIVE
NMC1120340	DEAN 23	80	PLACER	ACTIVE
NMC1120341	DEAN 24	80	PLACER	ACTIVE
NMC1120342	DEAN 25	80	PLACER	ACTIVE
NMC1120343	DEAN 26	80	PLACER	ACTIVE
NMC1120344	DEAN 27	80	PLACER	ACTIVE
NMC1120345	DEAN 28	80	PLACER	ACTIVE

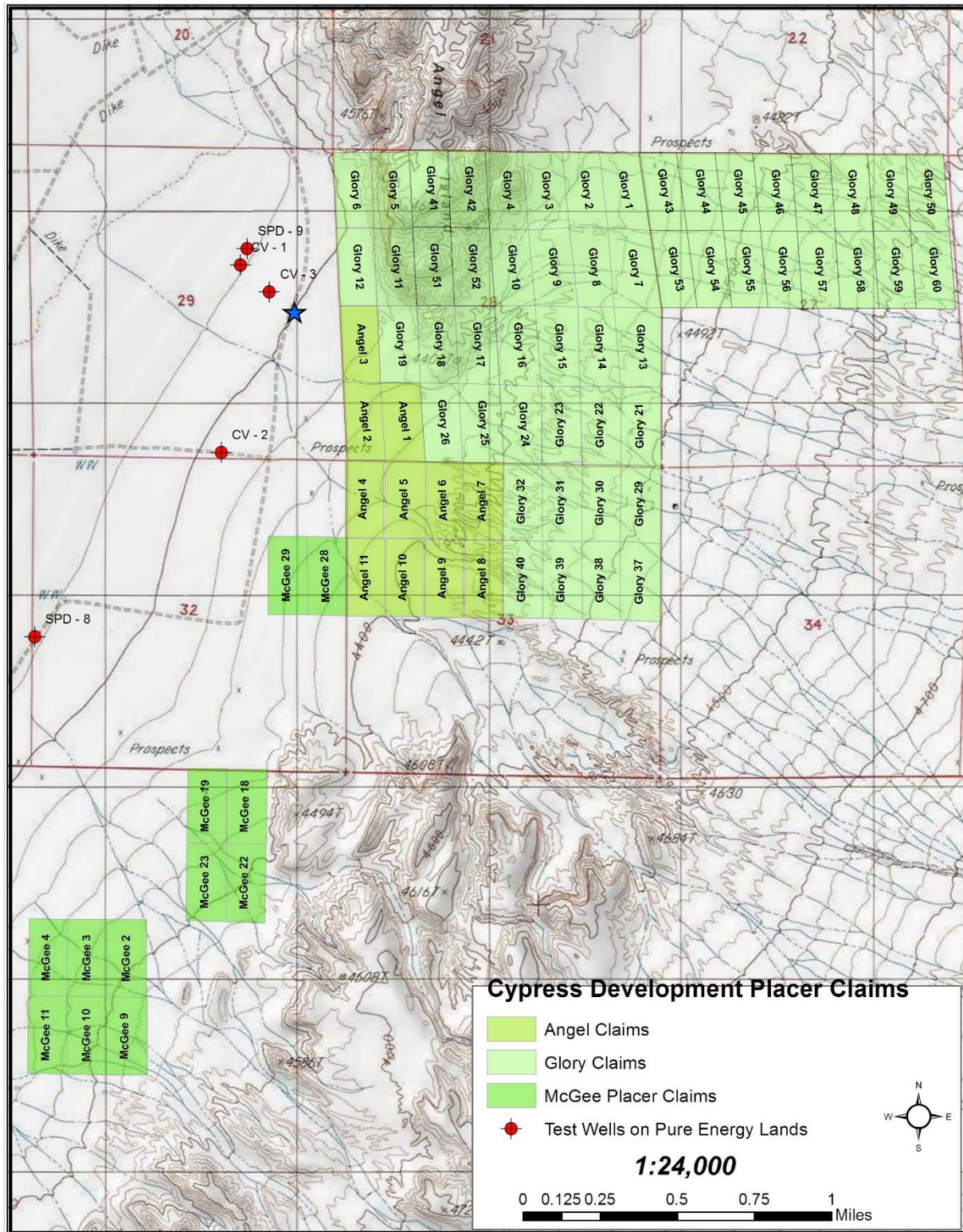
Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1120346	DEAN 29	80	PLACER	ACTIVE
NMC1120347	DEAN 30	80	PLACER	ACTIVE
NMC1120348	DEAN 31	80	PLACER	ACTIVE
NMC1120349	DEAN 32	80	PLACER	ACTIVE
NMC1120350	DEAN 33	80	PLACER	ACTIVE
NMC1120351	DEAN 34	80	PLACER	ACTIVE
NMC1120352	DEAN 55	40	PLACER	ACTIVE
NMC1121389	MCGEE 2	20	PLACER	ACTIVE
NMC1121390	MCGEE 3	20	PLACER	ACTIVE
NMC1121391	MCGEE 4	20	PLACER	ACTIVE
NMC1121392	MCGEE 9	20	PLACER	ACTIVE
NMC1121393	MCGEE 10	20	PLACER	ACTIVE
NMC1121394	MCGEE 11	20	PLACER	ACTIVE
NMC1121397	MCGEE 22	20	PLACER	ACTIVE
NMC1121398	MCGEE 23	20	PLACER	ACTIVE
NMC1121399	MCGEE 28	20	PLACER	ACTIVE
NMC1121400	MCGEE 29	20	PLACER	ACTIVE
NMC1124933	GLORY 41	20	PLACER	ACTIVE
NMC1124934	GLORY 42	20	PLACER	ACTIVE
NMC1124935	GLORY 43	20	PLACER	ACTIVE
NMC1124936	GLORY 44	20	PLACER	ACTIVE
NMC1124937	GLORY 45	20	PLACER	ACTIVE
NMC1124938	GLORY 46	20	PLACER	ACTIVE
NMC1124939	GLORY 47	20	PLACER	ACTIVE
NMC1124940	GLORY 48	20	PLACER	ACTIVE
NMC1124941	GLORY 49	20	PLACER	ACTIVE
NMC1124942	GLORY 50	20	PLACER	ACTIVE
NMC1124943	GLORY 51	20	PLACER	ACTIVE
NMC1124944	GLORY 52	20	PLACER	ACTIVE
NMC1124945	GLORY 53	20	PLACER	ACTIVE
NMC1124946	GLORY 54	20	PLACER	ACTIVE
NMC1124947	GLORY 55	20	PLACER	ACTIVE
NMC1124948	GLORY 56	20	PLACER	ACTIVE
NMC1124949	GLORY 57	20	PLACER	ACTIVE
NMC1124950	GLORY 58	20	PLACER	ACTIVE
NMC1124951	GLORY 59	20	PLACER	ACTIVE
NMC1124952	GLORY 60	20	PLACER	ACTIVE
NMC1129564	MCGEE 18	20	PLACER	ACTIVE
NMC1129565	MCGEE 19	20	PLACER	ACTIVE

**Figure 4-2: Clayton Valley Lithium Project Dean Placer Claims**





**Figure 4-3: Clayton Valley Lithium Project Angel, Glory, and McGee Placer Claims**



The lode claims are a maximum of 600 x 1,500 feet in size or about 20.5 acres each and together cover an area of 3,013 acres. The claims require annual filing of Intent to Hold and cash payments to the BLM and Esmeralda County totaling \$167 per claim. The claims are subject to a 3% NSR with 2% buy out for

\$2million in favor of the original property vendor. Table 4-2 lists the Cypress federal lode claims at the project, and Figure 4-4 and show the locations of the claims.

**Table 4-2: Federal Lode Claims**

Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1136414	LONGSTREET 1	15.49	LODE	ACTIVE
NMC1136415	JLS 2	20.66	LODE	ACTIVE
NMC1136416	JLS 3	20.66	LODE	ACTIVE
NMC1136417	JLS 4	20.66	LODE	ACTIVE
NMC1136418	JLS 5	20.66	LODE	ACTIVE
NMC1136419	JLS 6	20.66	LODE	ACTIVE
NMC1136420	JLS 7	20.66	LODE	ACTIVE
NMC1136421	JLS 8	20.66	LODE	ACTIVE
NMC1136422	JLS 9	20.66	LODE	ACTIVE
NMC1136423	JLS 10	20.66	LODE	ACTIVE
NMC1136424	JLS 11	20.66	LODE	ACTIVE
NMC1136425	JLS 12	20.66	LODE	ACTIVE
NMC1136426	JLS 13	20.66	LODE	ACTIVE
NMC1136427	JLS 14	20.66	LODE	ACTIVE
NMC1136428	JLS 15	20.66	LODE	ACTIVE
NMC1136429	JLS 16	20.66	LODE	ACTIVE
NMC1136430	JLS 17	20.66	LODE	ACTIVE
NMC1136431	JLS 18	20.66	LODE	ACTIVE
NMC1136432	JLS 19	20.66	LODE	ACTIVE
NMC1136433	JLS 20	20.66	LODE	ACTIVE
NMC1136434	JLS 21	20.66	LODE	ACTIVE
NMC1136435	JLS 22	20.66	LODE	ACTIVE
NMC1136436	JLS 23	20.66	LODE	ACTIVE
NMC1136437	JLS 24	20.66	LODE	ACTIVE
NMC1136438	JLS 25	20.66	LODE	ACTIVE
NMC1136439	JLS 26	20.66	LODE	ACTIVE
NMC1136440	JLS 27	15.49	LODE	ACTIVE
NMC1136441	JLS 28	15.49	LODE	ACTIVE
NMC1136442	JLS 29	15.49	LODE	ACTIVE
NMC1136443	JLS 30	20.66	LODE	ACTIVE
NMC1136444	JLS 31	20.66	LODE	ACTIVE
NMC1136445	JLS 32	20.66	LODE	ACTIVE
NMC1136446	JLS 33	20.66	LODE	ACTIVE
NMC1136447	JLS 34	20.66	LODE	ACTIVE
NMC1136448	JLS 35	20.66	LODE	ACTIVE
NMC1136449	JLS 36	20.66	LODE	ACTIVE
NMC1136450	JLS 37	20.66	LODE	ACTIVE
NMC1136451	JLS 38	20.66	LODE	ACTIVE
NMC1136452	JLS 39	20.66	LODE	ACTIVE
NMC1136453	JLS 40	20.66	LODE	ACTIVE
NMC1136454	JLS 41	20.66	LODE	ACTIVE
NMC1136455	JLS 42	20.66	LODE	ACTIVE

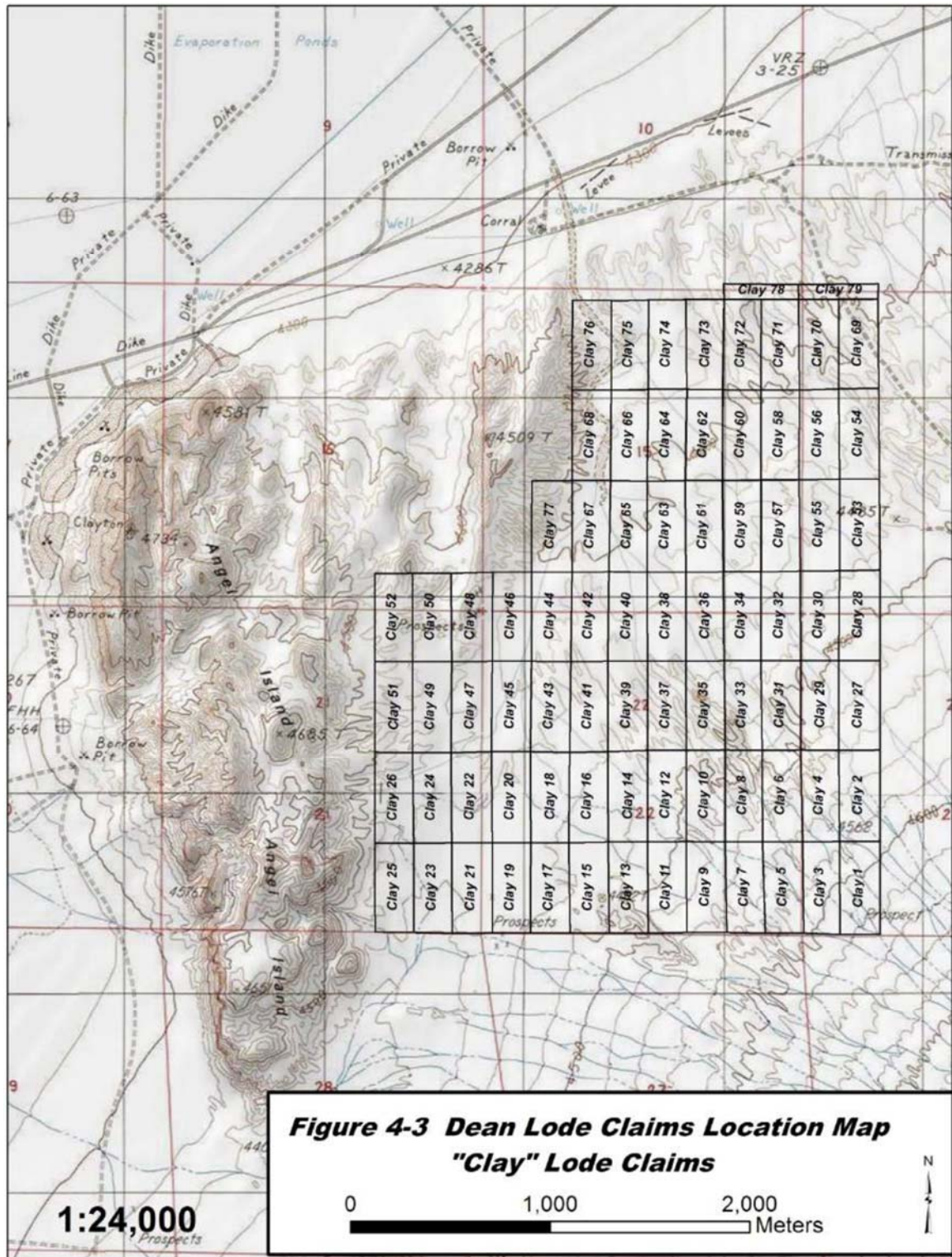


Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1136456	JLS 43	20.66	LODE	ACTIVE
NMC1136457	JLS 44	20.66	LODE	ACTIVE
NMC1136458	JLS 45	20.66	LODE	ACTIVE
NMC1136459	JLS 46	20.66	LODE	ACTIVE
NMC1136460	JLS 47	20.66	LODE	ACTIVE
NMC1136461	JLS 48	20.66	LODE	ACTIVE
NMC1136462	JLS 49	20.66	LODE	ACTIVE
NMC1136463	JLS 50	20.66	LODE	ACTIVE
NMC1136464	JLS 51	20.66	LODE	ACTIVE
NMC1136465	JLS 52	20.66	LODE	ACTIVE
NMC1136466	JLS 53	20.66	LODE	ACTIVE
NMC1136467	JLS 54	20.66	LODE	ACTIVE
NMC1136468	JLS 55	20.66	LODE	ACTIVE
NMC1136469	JLS 56	20.66	LODE	ACTIVE
NMC1136470	JLS 57	20.66	LODE	ACTIVE
NMC1136471	JLS 58	20.66	LODE	ACTIVE
NMC1136472	JLS 59	20.66	LODE	ACTIVE
NMC1136473	JLS 60	20.66	LODE	ACTIVE
NMC1136474	JLS 61	20.66	LODE	ACTIVE
NMC1136475	JLS 62	20.66	LODE	ACTIVE
NMC1136476	JLS 63	20.66	LODE	ACTIVE
NMC1136477	JLS 64	20.66	LODE	ACTIVE
NMC1136478	JLS 65	20.66	LODE	ACTIVE
NMC1136479	JLS 66	6.887	LODE	ACTIVE
NMC1136480	JLS 67	6.887	LODE	ACTIVE
NMC1136481	JLS 68	6.887	LODE	ACTIVE
NMC1136482	JLS 69	20.66	LODE	ACTIVE
NMC1136483	JLS 70	20.66	LODE	ACTIVE
NMC1136484	JLS 71	20.66	LODE	ACTIVE
NMC1162324	CLAY 1	20.66	LODE	ACTIVE
NMC1162325	CLAY 2	20.66	LODE	ACTIVE
NMC1162326	CLAY 3	20.66	LODE	ACTIVE
NMC1162327	CLAY 4	20.66	LODE	ACTIVE
NMC1162328	CLAY 5	20.66	LODE	ACTIVE
NMC1162329	CLAY 6	20.66	LODE	ACTIVE
NMC1162330	CLAY 7	20.66	LODE	ACTIVE
NMC1162331	CLAY 8	20.66	LODE	ACTIVE
NMC1162332	CLAY 9	20.66	LODE	ACTIVE
NMC1162333	CLAY 10	20.66	LODE	ACTIVE
NMC1162334	CLAY 11	20.66	LODE	ACTIVE
NMC1162335	CLAY 12	20.66	LODE	ACTIVE
NMC1162336	CLAY 13	20.66	LODE	ACTIVE
NMC1162337	CLAY 14	20.66	LODE	ACTIVE
NMC1162338	CLAY 15	20.66	LODE	ACTIVE
NMC1162339	CLAY 16	20.66	LODE	ACTIVE
NMC1162340	CLAY 17	20.66	LODE	ACTIVE
NMC1162341	CLAY 18	20.66	LODE	ACTIVE

Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1162342	CLAY 19	20.66	LODE	ACTIVE
NMC1162343	CLAY 20	20.66	LODE	ACTIVE
NMC1162344	CLAY 21	20.66	LODE	ACTIVE
NMC1162345	CLAY 22	20.66	LODE	ACTIVE
NMC1162346	CLAY 23	20.66	LODE	ACTIVE
NMC1162347	CLAY 24	20.66	LODE	ACTIVE
NMC1162348	CLAY 25	20.66	LODE	ACTIVE
NMC1162349	CLAY 26	20.66	LODE	ACTIVE
NMC1162350	CLAY 27	20.66	LODE	ACTIVE
NMC1162351	CLAY 28	20.66	LODE	ACTIVE
NMC1162352	CLAY 29	20.66	LODE	ACTIVE
NMC1162353	CLAY 30	20.66	LODE	ACTIVE
NMC1162354	CLAY 31	20.66	LODE	ACTIVE
NMC1162355	CLAY 32	20.66	LODE	ACTIVE
NMC1162356	CLAY 33	20.66	LODE	ACTIVE
NMC1162357	CLAY 34	20.66	LODE	ACTIVE
NMC1162358	CLAY 35	20.66	LODE	ACTIVE
NMC1162359	CLAY 36	20.66	LODE	ACTIVE
NMC1162360	CLAY 37	20.66	LODE	ACTIVE
NMC1162361	CLAY 38	20.66	LODE	ACTIVE
NMC1162362	CLAY 39	20.66	LODE	ACTIVE
NMC1162363	CLAY 40	20.66	LODE	ACTIVE
NMC1162364	CLAY 41	20.66	LODE	ACTIVE
NMC1162365	CLAY 42	20.66	LODE	ACTIVE
NMC1162366	CLAY 43	20.66	LODE	ACTIVE
NMC1162367	CLAY 44	20.66	LODE	ACTIVE
NMC1162368	CLAY 45	20.66	LODE	ACTIVE
NMC1162369	CLAY 46	20.66	LODE	ACTIVE
NMC1162370	CLAY 47	20.66	LODE	ACTIVE
NMC1162371	CLAY 48	20.66	LODE	ACTIVE
NMC1162372	CLAY 49	20.66	LODE	ACTIVE
NMC1162373	CLAY 50	20.66	LODE	ACTIVE
NMC1162374	CLAY 51	20.66	LODE	ACTIVE
NMC1162375	CLAY 52	20.66	LODE	ACTIVE
NMC1162376	CLAY 53	20.66	LODE	ACTIVE
NMC1162377	CLAY 54	20.66	LODE	ACTIVE
NMC1162378	CLAY 55	20.66	LODE	ACTIVE
NMC1162379	CLAY 56	20.66	LODE	ACTIVE
NMC1162380	CLAY 57	20.66	LODE	ACTIVE
NMC1162381	CLAY 58	20.66	LODE	ACTIVE
NMC1162382	CLAY 59	20.66	LODE	ACTIVE
NMC1162383	CLAY 60	20.66	LODE	ACTIVE
NMC1162384	CLAY 61	20.66	LODE	ACTIVE
NMC1162385	CLAY 62	20.66	LODE	ACTIVE
NMC1162386	CLAY 63	20.66	LODE	ACTIVE
NMC1162387	CLAY 64	20.66	LODE	ACTIVE
NMC1162388	CLAY 65	20.66	LODE	ACTIVE

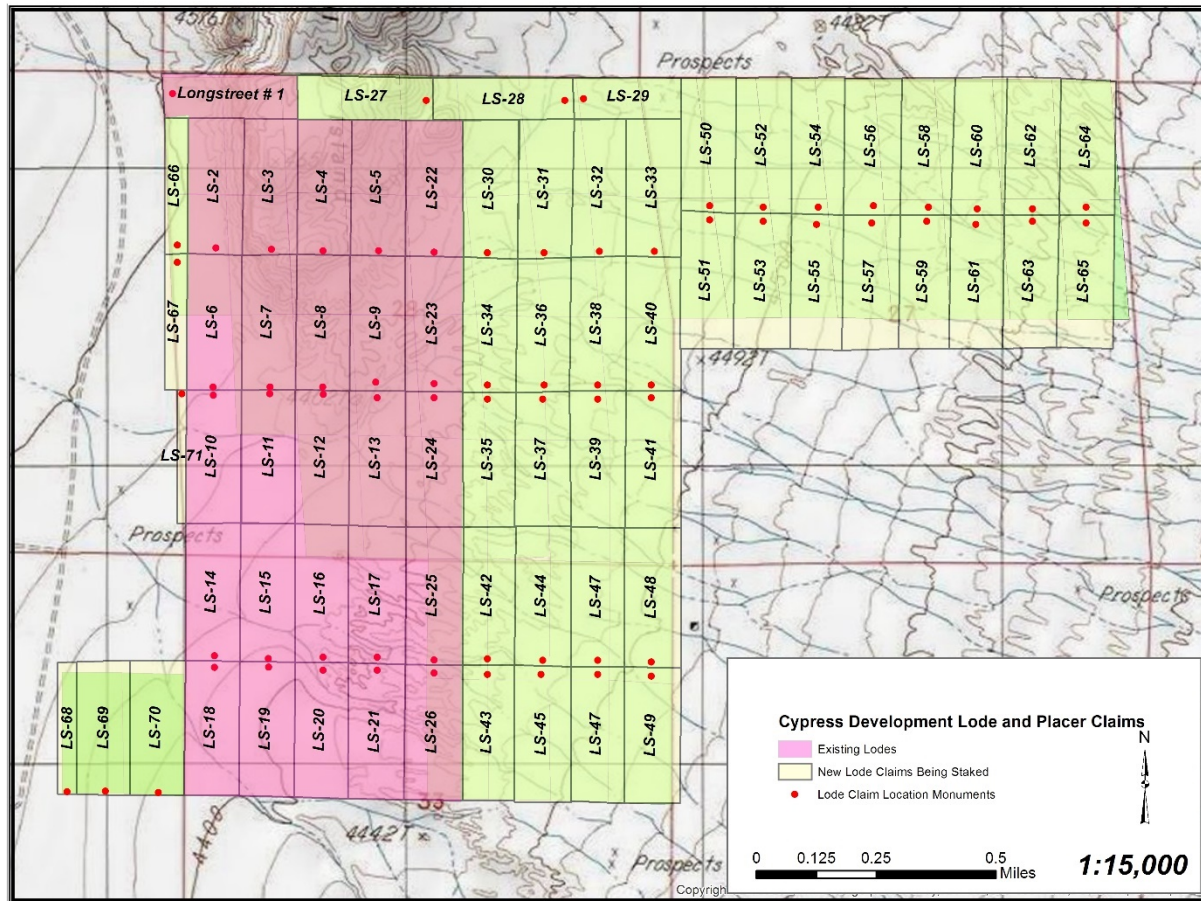
Serial Number	Claim Name	Acreage	Case Type	Disposition
NMC1162389	CLAY 66	20.66	LODE	ACTIVE
NMC1162390	CLAY 67	20.66	LODE	ACTIVE
NMC1162391	CLAY 68	20.66	LODE	ACTIVE
NMC1162392	CLAY 69	20.66	LODE	ACTIVE
NMC1162393	CLAY 70	20.66	LODE	ACTIVE
NMC1162394	CLAY 71	20.66	LODE	ACTIVE
NMC1162395	CLAY 72	20.66	LODE	ACTIVE
NMC1162396	CLAY 73	20.66	LODE	ACTIVE
NMC1162397	CLAY 74	20.66	LODE	ACTIVE
NMC1162398	CLAY 75	20.66	LODE	ACTIVE
NMC1162399	CLAY 76	20.66	LODE	ACTIVE
NMC1162400	CLAY 77	20.66	LODE	ACTIVE
NMC1162401	CLAY 78	9.09	LODE	ACTIVE
NMC1162402	CLAY 79	9.09	LODE	ACTIVE

**Figure 4-4: Clayton Valley Lithium Project Dean Lode Claims**





**Figure 4-5: Clayton Valley Lithium Project Glory Lode Claims**



### 4.3 Tenure Rights

Cypress owns 111 placer claims and 150 lode mining claims as shown in Figure 4-2 and Figure 4-4. The claims are all in good standing with the BLM and Esmeralda County.

### 4.4 Legal Survey

The 111 placer claims, and 150 lode mining claims are survey tied to brass caps of the existing federal land survey in the area. Numerous section corners and quarter corners are present in the field as brass caps.



## **5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY**

### **5.1 Accessibility**

The project is accessed from Tonopah, Nevada, by traveling 22 miles south on US Highway 95, then 20 miles west on Silver Peak Road, a paved and well-maintained gravel road.

### **5.2 Climate**

The climate of the Clayton Valley is hot in summer, with average high temperatures around 100 °F and cool in the winter with average daily lows of 15 to 30 °F. Precipitation is dominantly in the form of thunderstorms in late summer. Snow cover in winter is rare.

Year-round low humidity aids in evaporation. Wind storms occur in the fall, winter, and spring.

### **5.3 Physiography**

The project is in the Great Basin physiographic region and, more precisely, within the Walker Lane province of the western Great Basin. The Clayton Valley is a flat-bottomed salt basin that is surrounded by a complete pattern of mountain ranges. Broad, low passes lead into the basin from the north and east.

On the project itself, the terrain is dominated by mound-like outcrops of mineralized mudstones, which are cut by dry, gravel wash bottoms. Access at the project is excellent due to the overall low relief of the terrain (see Photo 5-1 Photo 5-2, and Photo 5-3).

**Photo 5-1: Northern Half of Clayton Valley Lithium Project Looking East**



Clayton Ridge is 2 miles in background, where basement rocks are exposed to the east of a major normal fault.

**Photo 5-2: Clayton Valley Lithium Project, Dry Wash Channels and Mounds of Mineralized Mudstone**



**Photo 5-3: Typical Outcrop at Clayton Valley Lithium Project**



Note tuffaceous unit overlying olive green mudstone. This interbedding is typical of the Upper Tuffaceous Mudstone unit.

## **5.4 Local Resources and Infrastructure**

The project is in a region of active extraction of lithium brines and open pit gold mining. The immediately adjacent Silver Peak Lithium Production Complex has been in production since the 1960s. The project lies near paved roads, power lines, and regional towns that service the mining industry.

## **6.0 HISTORY**

### **6.1 Project History**

The project area shows signs of limited past exploration in the form of old weathered pits and trenches, and rare old piled stone rock mound claim corners. The area is roughly mapped and is shown as Esmeralda Formation sedimentary rocks and volcanic rocks on 1960s era geologic maps. The mapping mentioned here is the only known written evidence of geologic work in the project area. The DB placer claims were staked as part of the Rodina effort; these claims covered the entire project but were dropped.

The United States Geological Survey (USGS) has reportedly worked in the mudstones on several occasions. Limited sampling was completed as part of the USGS traverses. An assay of >2,000 ppm Li was noted on the west side of Angel Island from work done in the 1970s. The majority of USGS work in the basin was focused on lithium brine investigations.

The Nevada Bureau of Mines and Geology did work with mineralized mudstones on the Glory claims. The ongoing work involves XRD work on thin pumice layers within the exposed mudstone package.

There is no indication of any drilling occurring on the project prior to Cypress' efforts in 2017. Drilling by Noram Ventures in an area near the northeast corner of the project was done in winter 2016-2017. Spearmint Resources drilled three holes south of the property in 2018.

A series of bench like open cuts into mudstone units has occurred along the west flank of Angel Island. The cuts and quarries are of recent age and may still be used. These operations have occurred in the recent past on Cypress placer claims in the southwest portion of the project, but are largely located on private lands owned by Albemarle Corp.

There is very little past surface exploration work. A small number of surface samples of mineralized mudstone were collected, and a significant lithium anomaly was noted by the USGS.

### **6.2 Compilation of Reports on Exploration Programs**

The February 2018 Technical Report (Cypress Development Corp., 2018) was the first report to document exploration of the project. Other descriptions of the mineralized mudstones at the project are contained within Cypress news releases of 2016 and 2017 as well as within well-organized maps and other documents which are available on the Cypress website.

Numerous USGS reports are available detailing drill results and other activities in the adjacent salt playa.

Additionally, both Pure Energy Resources and Noram Ventures have produced a series of NI 43-101 compliant reports of nearby properties. The Pure Energy reports detail investigation of commercial grade brine resources immediately west of the project, while the Noram reports outline significant lithium exploration results to the east of the project.

Reports from both the private and public sectors were read by the authors.

## 7.0 GEOLOGIC SETTING AND MINERALIZATION

The following descriptions of the regional and local geologic setting of the Clayton Valley are largely based on work completed by Davis and Vine (1979), Davis et. al (1986), Munk (2011) and Bradley et. al (2013), and much of the following text is modified and/or excerpted from these reports. The author has reviewed this information and available supporting documentation in detail, and finds the discussion and interpretations presented herein to be reasonable and suitable for use in this report.

### 7.1 Regional Geology

The Clayton Valley Lithium Project is part of a closed basin near the southwestern margin of the Basin and Range geo-physiographic province of western Nevada. Horst and graben normal faulting is a dominant structural element of the Basin and Range and is thought to have occurred in conjunction with deformation due to lateral shear stress, resulting in disruption of large-scale topographic features. The Walker lane, a zone of disrupted topography (Locke, et al., 1940) perhaps related to right-lateral shearing (Stewart, 1967), may pass within a few kilometers of the northern and eastern boundaries of Clayton Valley. The Walker lane is not well defined in this area and may be disrupted by the east-trending Warm Springs lineament (Ekren, et al., 1976), which could be a left-lateral fault conjugate to the Walker lane (Shawe, 1965). To the west of Clayton Valley, the Death Valley-Furnace Creek fault zone is a right-lateral fault zone that may die out against the Walker lane northwest of the valley. South of Clayton Valley, the arcuate form of the Palmetto Mountains is thought to represent tectonic "bending," a mechanism taking up movement in shear zones at the end of major right lateral faults (Albers, 1967).

In the mountains bordering the valley to the east and west, faults in Cenozoic rocks generally trend about N20° to 40°E. Near the margins of the playa surface, fault scarps having two distinct trends have been studied in detail (Davis, et al., 1979). At the eastern margin, a set of moderately dissected scarps in Quaternary alluvial gravels strike about N20°E. In the east central portion of the valley, a more highly dissected set of scarps in alluvium and upper Cenozoic lacustrine sediments strikes about N65°E. If the modification of these fault scarps is similar to fault-scarp modification elsewhere in Nevada and Utah (Wallace, 1977; Bucknam, et al., 1979) the most recent movement on the N20°E set of scarps probably occurred less than 10,000 years ago, while the last movement on the N65°E set is probably closer to 20,000 years in age (Davis, et al., 1979).

Regional basement rocks consist of Precambrian (late Neoproterozoic) to Paleozoic (Ordovician) carbonate and clastic rocks deposited along the ancient western passive margin of North America. Regional shortening and low-grade metamorphism occurred during late Paleozoic and Mesozoic orogenies, along with granitic emplacement during the mid to late Mesozoic (ca. 155 and 85 Ma). Tectonic extension began in the late Cenozoic (~16 Ma) and has continued to the present.

East of Clayton Valley, more than 100 cubic kilometers (km<sup>3</sup>) of Cenozoic ash-flow and air-fall tuff is exposed at Clayton Ridge and as far east as Montezuma Peak. These predominantly flat-lying, pumiceous rocks are interbedded with tuffaceous sediments between Clayton Ridge and Montezuma Peak; but at Montezuma Peak these rocks are altered considerably and dip at angles of as much as 30°. In the Montezuma Range, they are unconformably overlain by rhyolitic agglomerates. Davis et al. (1986) speculate that the source of these tuff sheets may have been a volcanic center to the east near



Montezuma Peak, to the south in the Montezuma Range, the Palmetto Mountains, Mount Jackson, or perhaps even the Silver Peak center to the west.

Cenozoic sedimentary rocks are exposed in the Silver Peak Range, in the Weepah Hills, and in the low hills east of the Clayton Valley playa. These rocks all are included in the Esmeralda Formation (Turner, 1900). The Esmeralda Formation consists of sandstone, shale, marl, breccia, and conglomerate, and is intercalated with volcanic rocks, although Turner (1900) excluded the major ash-flow units and other volcanic rocks in defining the formation. The rocks of the Esmeralda Formation in and around Clayton Valley apparently represent sedimentation in several discrete Miocene basins. The age of the lower part of the Esmeralda Formation in Clayton Valley is not known, but an air-fall tuff in the uppermost unit of the Esmeralda Formation has a K-Ar age of  $6.9 \pm 0.3$  Ma (Robinson, et al., 1968).

The regional geology is illustrated in Figure 7-1.

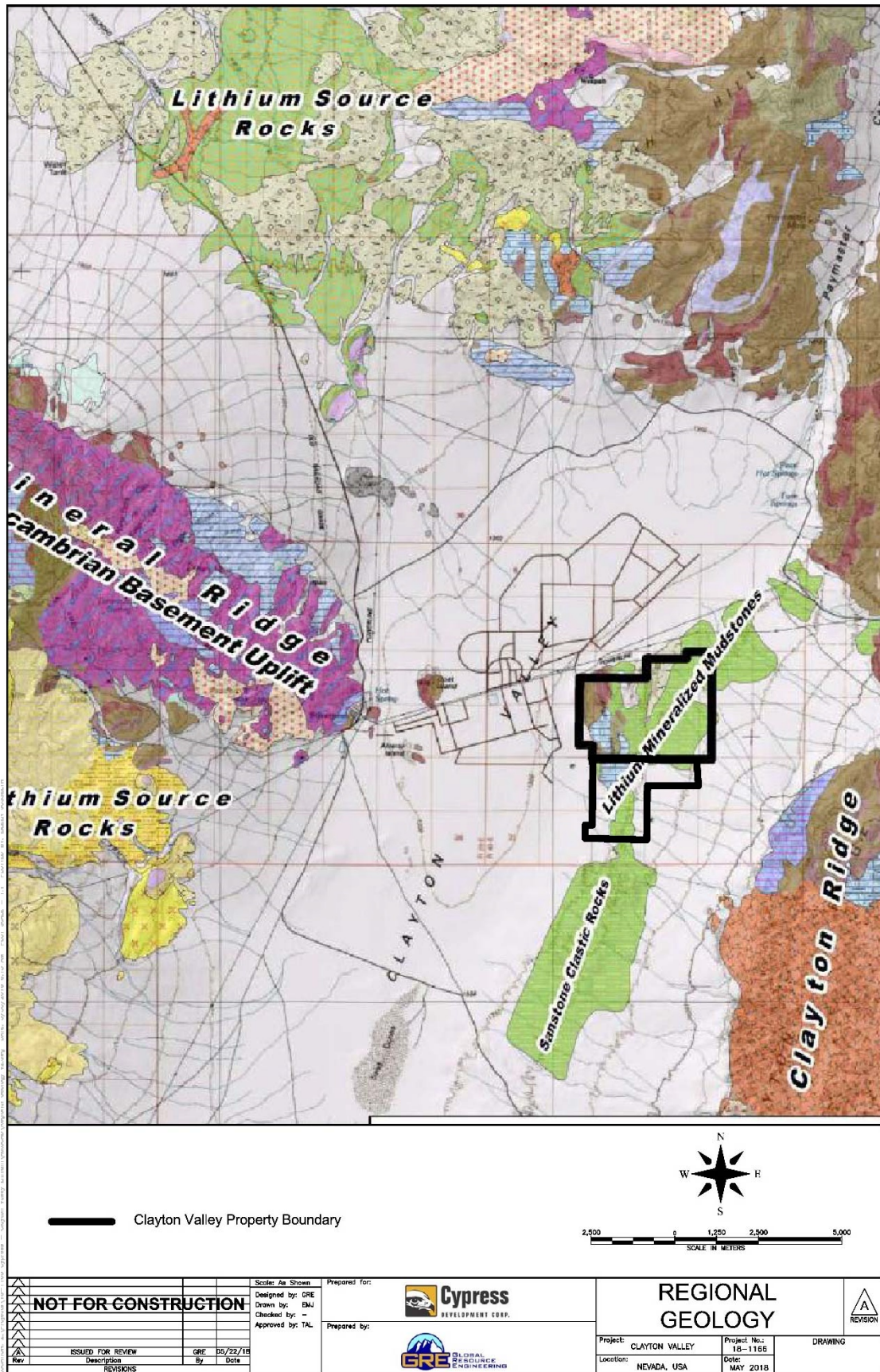
## 7.2 Local Geologic Setting

Clayton Valley is the lowest in elevation of a series of intermediate size playa filled valleys, with a playa floor of about 100 square kilometers ( $\text{km}^2$ ) that receives surface drainage from an area of about 1,300  $\text{km}^2$ . The valley is fault-bounded on all sides, delineated by the Silver Peak Range to the west, Clayton Ridge and the Montezuma Range to the east, the Palmetto Mountains and Silver Peak Range to the south, and Big Smokey Valley, Alkali Flat, Paymaster Ridge, and the Weepah Hills to the north.

The valley lies within an extensional half-graben system between a young metamorphic core complex and its breakaway zone (Oldow, et al., 2009). The general structure of the north part of the Clayton Valley basin is known from geophysical surveys and drilling to be a graben structure with its most down-dropped part on the east-northeast side of the basin along the extension of the Paymaster Canyon Fault and Angel Island Fault (Zampirro, 2005). A similar graben structure has been identified in the south part of the Clayton Valley basin through gravity and seismic survey.

Multiple wetting and drying periods during the Pleistocene resulted in the formation of lacustrine deposits, salt beds, and lithium-rich brines in the Clayton Valley basin. Extensive diagenetic alteration of vitric material to zeolites and clay minerals has taken place in the tuffaceous sandstone and shale of the Esmeralda Formation, and anomalously high lithium concentrations accompany the alteration. The lacustrine sediment near the center of pluvial lakes in Clayton Valley is generally green to black calcareous mud. According to (Davis, et al., 1986), about half of the mud, by weight, is smectite and illite, which are present in nearly equal amounts, with the remaining half composed of calcium carbonate (10-20%), kaolinite, chlorite, volcanoclastic detritus, traces of woody organic material, and diatoms. These tuffaceous lacustrine facies of the Esmeralda Formation contain up to 1,300 parts per million (ppm) lithium and an average of 100 ppm lithium (Kunasz, 1974; Davis, et al., 1979). Lithium bearing clays in the surface playa sediments contain from 350 to 1,171 ppm lithium (Kunasz, 1974). More recent work by Morissette (2012) confirms elevated lithium concentrations in the range of 160-910 ppm from samples collected on the northeast side of Clayton Valley. Miocene silicic tuffs and rhyolites along the basin's eastern flank have lithium concentrations up to 228 ppm (Price, et al., 2000).

Figure 7-1: Regional Geology



## 7.3 Project Geology and Mineralization

### 7.3.1 Lithology

The western portion of the project area is dominated by the uplifted basement rocks of Angel Island, while the southern and eastern portions are dominated by uplifted, lacustrine sedimentary units of the Esmeralda Formation. Within the project area, the Esmeralda Formation is comprised of fine grained sedimentary and tuffaceous units, with some occasionally pronounced local undulation and minor faulting (Figure 7-2). The resulting topography consists of elongate, rounded ridges of exposed Esmeralda Formation separated by washes and gullies filled with alluvial and colluvial gravels and fine sediment. The ridge tops are commonly mantled weathered remnants of rock washed down from the surrounding highlands.

Cypress provides the following description of the individual stratigraphic units of the Esmeralda within the project area, which together form a laterally and vertically continuous stratigraphic section which underlies the eastern 60% of the project area (Figure 7-3):

**Recent Gravel Cover** - a thin veneer of polyolithic cobble, boulder and sand cover exists over portions of the project. This cover unit varies from 0 to 3 meters in thickness. The gravel is being shed out of steep canyons cutting Clayton ridge to the east.

**Upper Tuffaceous Mudstone Cap Rock** - this is the highest unit in the mineralized sequence and consists of interbedded silty mudstones and harder tuffaceous beds. The unit is approximately 70% mudstone and 30% hard tuff layers. This layer is generally 3 to 10 meters thick. Grades average 600 to 700 ppm Li.

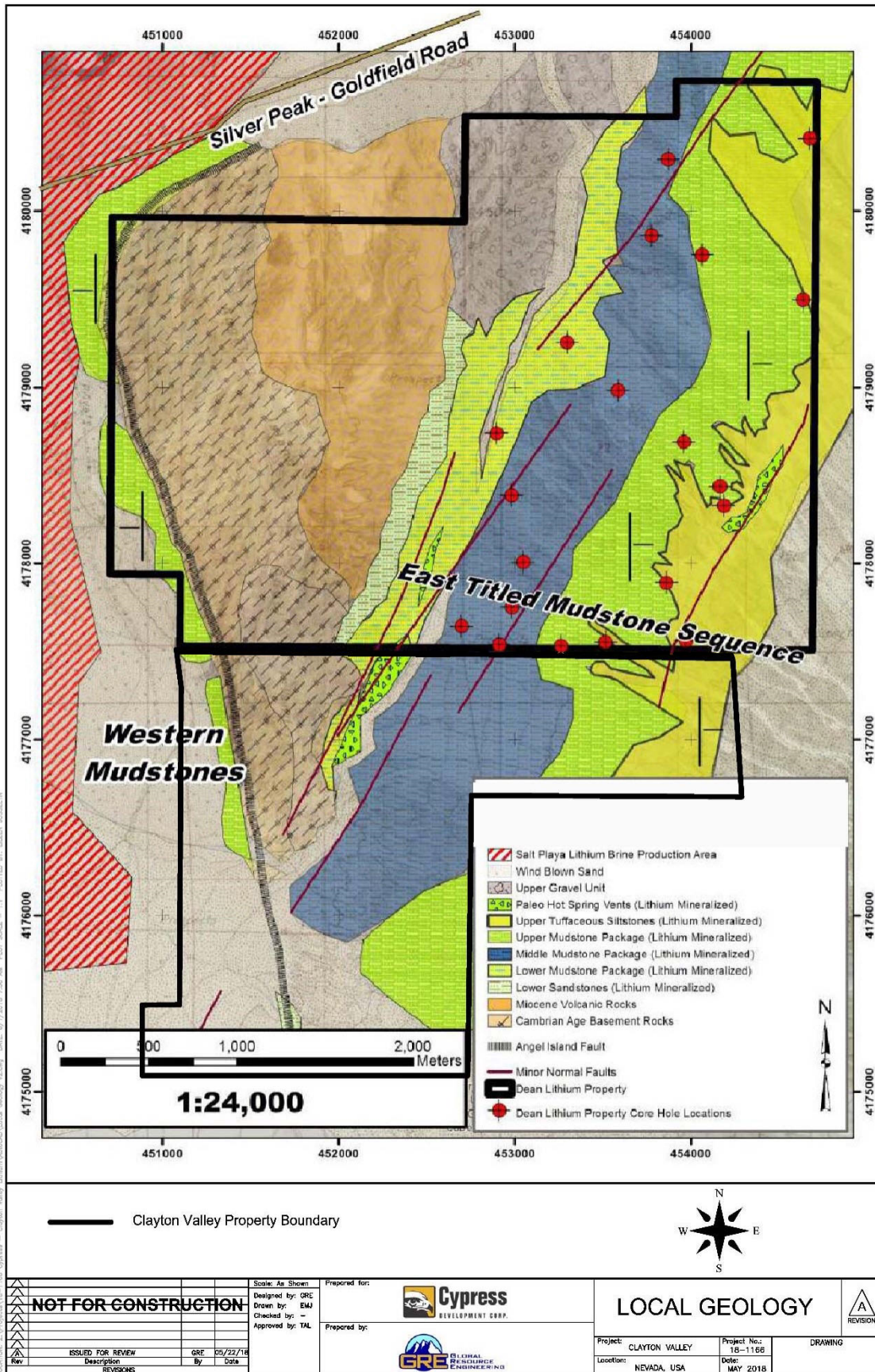
**The Upper Olive Mudstone Unit** - this unit starts the main ash rich mudstone sequence which contains much of the lithium mineralization found to date. The unit is oxidized and contains locally abundant iron oxide staining and partial layer replacement. Below an interbedded top section, this unit becomes massive with uniform texture, color, and grain size. This layer is generally 20 to 30 meters thick. Average grade is 800 ppm Li.

**Main Blue Mudstone Unit** - (aka the Black and Blue), this is a continuation of the Upper Olive unit above but below an oxidation-reduction boundary. A sharp color change from robust olive to blue occurs at the redox, or several times as the redox is locally complex and interbedded. This layer is generally 10 to 20 meters thick. Average grade is 1,100 ppm Li.

**Lower Olive Mudstone Unit** - this unit underlies a second, locally complex oxidation-reduction boundary, where the blue and black unit above change gradationally back to olive colored mudstone. Fully olive colored mudstone sections occur within this unit that contain completely black, reduced mudstone interbeds. The uppermost 9 to 12 meters are well mineralized. After about 12 meters, the unit starts to turn tan and to contain increasing percentages of hard, sandy or other silica layers. Pumice fragments are common in this unit. This layer is generally 15 to 20 meters thick. Average grade is 800 ppm Li.

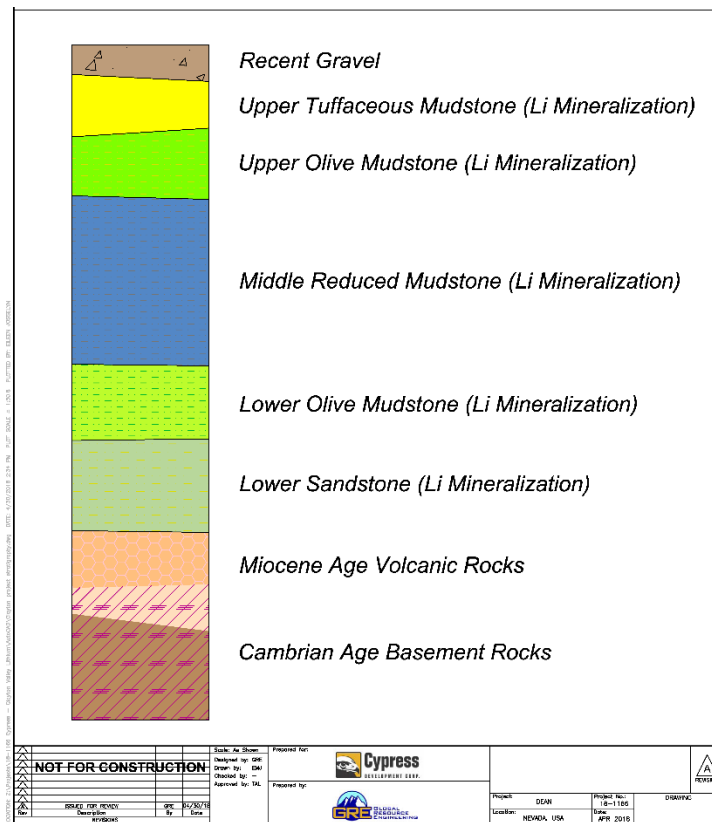


Figure 7-2 Geologic Map of the Clayton Valley Project





**Figure 7-3: Clayton Valley Lithium Project Stratigraphy**



**The Hard Bottom** – this unit has a gradational upper contact and represents a unit where the olive color is totally changed to tan and in which the percentage of sand is 20% to 40%. Lithium values are lower than in the strongly mineralized zones above and range from 400 to 700 ppm Li. Cypress has not drilled through this unit, and its thickness and the underlying structure remain unknown.

### 7.3.2 Mineralization

Significant lithium concentrations are encountered in the sedimentary units of the Esmeralda within the project area at ground surface and to depths of up to 124 meters. The lithium bearing sediments primarily occur as calcareous and salty interbedded tuffaceous mudstones and claystones. The overall mineralized sedimentary package is a laterally and vertically extensive, roughly tabular zone of interbedded mudstone and claystone with at least two prominent oxidation horizons in the subsurface. The mineralized zone consists of three primary units: an “upper” olive-colored mudstone, “middle” blue mudstone/claystone, and “lower” olive-colored mudstone. The middle (reduced) portion of the mineralized zone represents much of the overall mineralized sedimentary package. The upper and lower mudstone units are oxidized to an olive-green color, while the middle mudstone/claystone is reduced and blue, black, or grey in color in fresh drill core. The three primary units are generally overlain by tuffaceous mudstone and underlain by increasingly sandy mudstones. Elevated lithium concentrations occur in all the uplifted lacustrine strata encountered, but lithium concentrations are notably higher and more persistent in the three primary units. These units are 20 to 80 meters thick, with the middle units, referred to as Upper Olive, Main Blue, and Lower Olive, respectively, having average grades of 850 to 1,100 ppm. Portions of these units could be selectively mined at grades exceeding 1,100 ppm lithium.

A series of longitudinal and cross sections showing logged geology and hole to hole geologic interpretation and assay results from split core intervals was prepared. Representative sections are presented in Section 14 as Figure 14-17 and Figure 14-18.

Cypress splits 100% of drill core from surface and through the entire mudstone section and into the underlying hard sandstone units seen in the bottom of many of the holes. Ten-foot interval samples taken between core footage marker blocks make up over 90% of the assay data. These individual sample assay results are plotted on the sections and are also available in the compiled drill exploration database for the project.

## 8.0 DEPOSIT TYPE

Lithium is known to occur in potentially economic concentrations in three types of deposits: pegmatites, continental brines, and clays. While lithium is produced from both pegmatites and continental brines, with brines the most important source of lithium worldwide, economic extraction of lithium from clays has yet to be proven.

In clay deposits, lithium is most often associated with the smectite (montmorillonite) group mineral hectorite, which is rich in both magnesium and lithium. The USGS presents a preliminary descriptive model of lithium in smectites of closed basins (Asher-Bolinder, 1991), Model 251.3(T), which postulates three forms of genesis for clay lithium deposits: alteration of volcanic glass to lithium-rich smectite; precipitation from lacustrine waters; and incorporation of lithium into existing smectites. In each case, the depositional/diagenetic model is characterized by abundant magnesium, silicic volcanics, and an arid environment. The project appears to have a higher portion of illite and kaolinite than some other claystone deposits. This appears to differentiate the project from other claystone deposits.

Regional geologic attributes of lithium clay deposits, as presented by Asher-Bolinder (1991), include a Basin-and-Range or other rift tectonostratigraphic setting characterized by bimodal volcanism, crustal extension, and high rates of sedimentation. The depositional environment is limited to arid, closed basins of tectonic or caldera origin, with an age of deposition ranging from Paleocene to Holocene. Host rocks include volcanic ashes, pre-existing smectites, and lacustrine beds rich in calcium and magnesium.

The project is reasonably well represented by the USGS preliminary deposit model, which describes the most readily ascertainable attributes of such deposits as light-colored, ash-rich, lacustrine rocks containing swelling clays, occurring within hydrologically closed basins with some abundance of proximal silicic volcanic rocks. The geometry of the deposit at the project is roughly tabular, with the lithium concentrated in gently dipping, locally undulating, sedimentary strata of the Esmeralda Formation. The sedimentary units consist of interbedded calcareous, ash-rich mudstones and claystones, with interbeds of sandy and tuffaceous mudstone/siltstone and occasional poorly cemented sandstone. The lithium is largely concentrated within the mudstones and claystones, but elevated concentrations were recorded in a sandstone unit that underlies the clays.

Cypress geologists suggest deposition of the lithium-rich sediments late in the history of the associated paleo brine lake, based largely on the stratigraphic position of the mudstones and claystones above the thick overall sandstone- and siltstone-dominated basin fill. Such a setting would be ideal for concentration of lithium from ash and groundwater inputs over an extensive period. As a result, the lithium-rich strata may well represent several million years of lithium input and concentration within the basin.

The lithium-bearing sediments of the deposit surround an oxidation/reduction horizon that is readily recognizable in core samples. Based on drilling results to date, the higher lithium concentrations occur largely within a thick (up to 80-meter) central reduced zone and in oxidized zones that both overlie and underlie the zone of reduction. Cypress geologists suggest that this distribution of mineralization results from modern, oxidizing surface waters penetrating down dip within more permeable facies of the sedimentary package to create a series of oxidation-reduction fronts. Based on this interpretation,

significantly elevated lithium concentrations within the deposit may represent redistribution of lithium in a tabular roll front reduction environment.



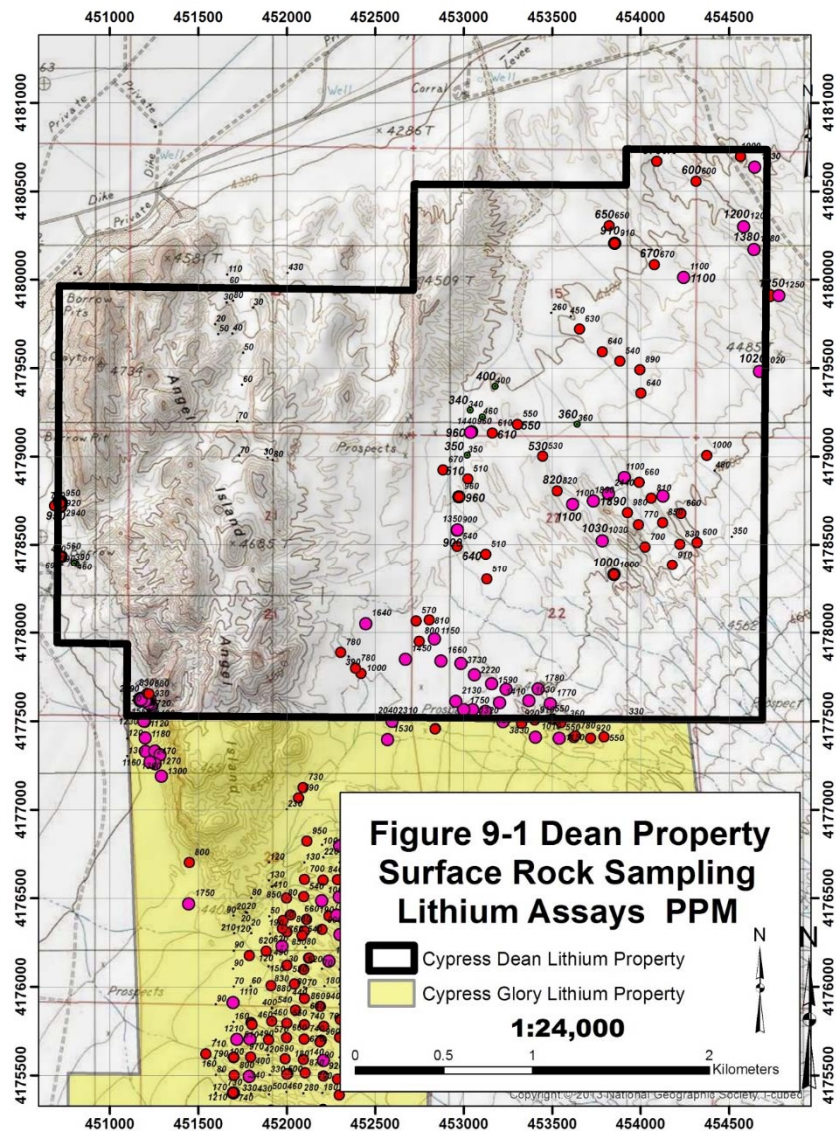
## 9.0 EXPLORATION

Cypress began exploring the project in late 2015. Exploration activities carried out by Cypress to date include surface sampling, detailed geological mapping, and drilling.

### 9.1 Surface Sampling

Surface samples of friable outcropping mudstone were collected by Cypress geologists over a 10-month period ending in October 2016. The samples were largely located in the eastern and southern portions of the project area (Figure 9-1).

**Figure 9-1: Clayton Valley Lithium Project Surface Sampling**



In total, Cypress has submitted 634 soil and rock chip samples (28 of which were duplicate samples) for laboratory analysis by 33 element 4-acid inductively coupled plasma atomic emission spectroscopy (ICP-AES) and 35-element aqua regia atomic absorption spectroscopy (AAS). Analytical results indicate elevated lithium concentrations at ground surface over nearly the full extent of the area sampled. Assay

values exceeding 2,000 ppm Li were returned for samples collected in the northern portion of the Glory property and from just west of the Angel Island fault, in the central portion of the Project area.

## **9.2 Mapping**

Cypress has conducted general geologic surface mapping over most of project area. The total mapped surface is roughly 8-10 km<sup>2</sup>. The surficial geologic maps are used as a general guide for exploration planning in conjunction with soil sampling and drilling results. The author knows of no other exploration activities carried out by Cypress, except for drilling, that warrant discussion in this report.

## 10.0 DRILLING

### 10.1 Cypress Drilling Exploration

Cypress conducted drilling exploration at the project in 2017 and early 2018. A total of 23 vertical, NQ-size (1.87-in core diameter) core holes were drilled, all by Morning Star Drilling of Three Forks, Montana, using an Acker track-mounted drill rig. Drill hole depths range from 33 to 129.5 meters (108 to 425 feet), totaling 1,905 meters (6,250 feet) drilled. Given the shallow depth of the holes, no downhole surveys were completed. Drill hole locations are presented in plan view on Figure 10-1, and drill hole details are summarized in Table 10-1.

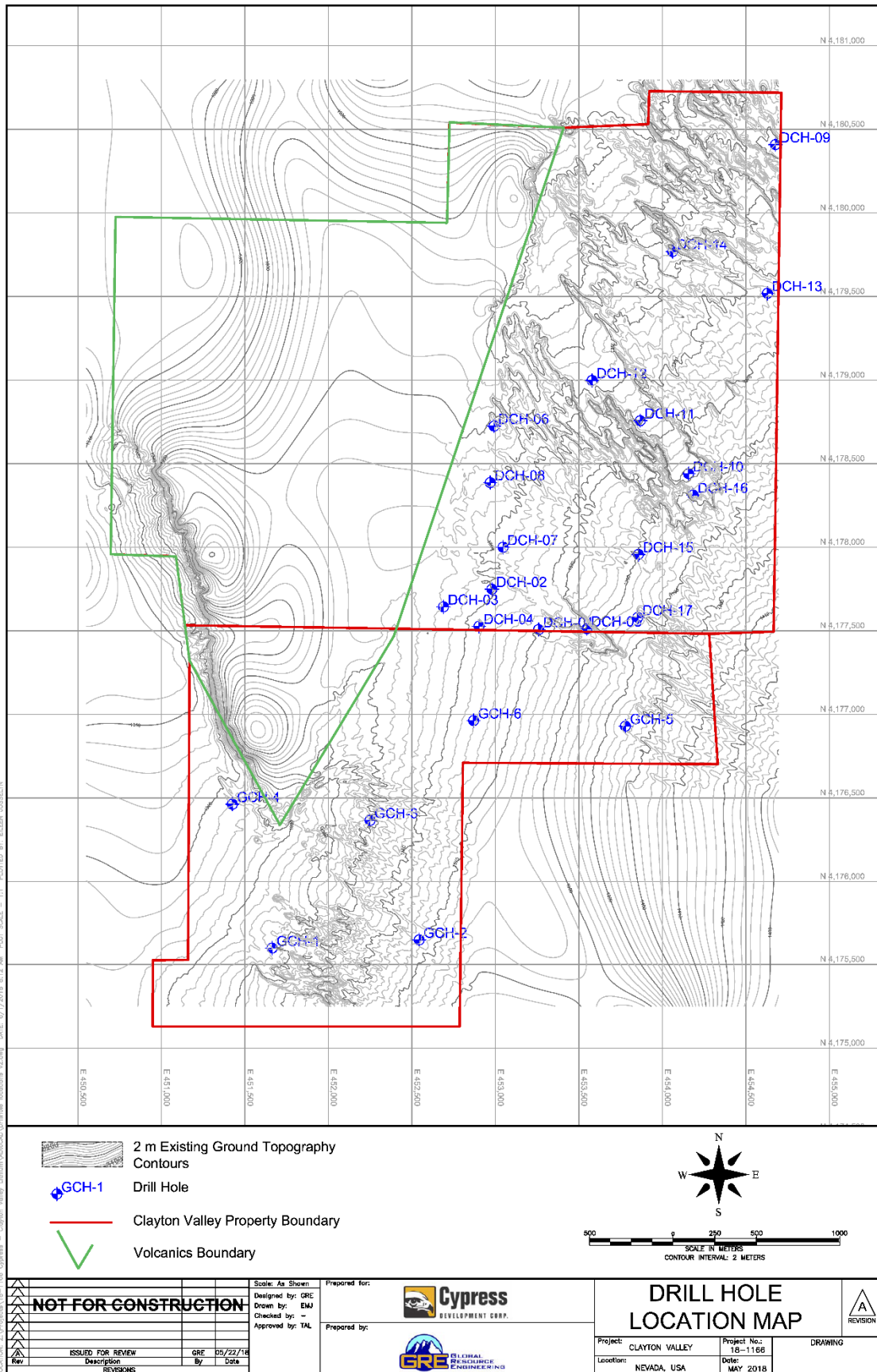
Based on drilling exploration to date, shallow (<130 meter) subsurface stratigraphy consists of variably interbedded lakebed deposits of calcareous and ash-rich mudstone and claystone, ashfall tuff, and occasional tuffaceous sandstone, all dipping gently to the east. These sediments are underlain by a distinct, poorly to very well indurated sandstone unit in at least 11 of the 23 drill hole locations. Lithium values in the sandstone are significantly lower than those within the overlying sediments, and this unit represents the “bottom” of drilling exploration carried out to date.

The drilling results generally indicate a particularly favorable section of ash-rich mudstones that extend to depths of up to 100 meters, within which exists a strong, apparently planar, oxidation/reduction front. The color change in freshly drilled core is dramatic, with olive green mudstones changing to blue and black mudstones. The change is sharp, but frequently olive and blue mudstones are interbedded over several meters before continuous blue to blue black mudstones are intersected. Lithium content is often, but not always, slightly higher within the oxidized sediments, though any specific significance of the oxidation horizon regarding lithium mineralization is not yet well understood.

While the drill holes are widely spaced, averaging 650 to 700 meters between holes, the lithium profile with depth is consistent from hole to hole. Unweighted lithium content averages 929.8 ppm for all 665 samples assayed, with an overall range of 116 to 2,240 ppm. Average sample interval length is 2.7 meters (9 feet). Significant drill hole intervals are presented in Table 10-2. The length of the mineralized intervals presented in Table 10-2 should closely represent the true thickness of mineralization, given the apparent tabular (or horizontal) occurrence of the lithium deposit and the very shallow dip of the sedimentary strata.

Cypress reports that core recoveries are generally excellent, and this was verified by visual examination of the core during the site visit. While on site, the QP carefully reviewed the drilling and sampling procedures employed by Cypress with Cypress staff. Based on that review, the QP finds no drilling, sampling, or recovery factors that might materially impact the accuracy or reliability of the drilling results. The QP recommends that Cypress produce annual (or seasonal) exploration reports to describe the drilling and sampling carried out during each given year or drilling campaign. The exploration report should contain adequate detail concerning the drill rig, drilling contractor, number of holes, total meters, recovery rates, drill targets, and rationale for drill hole distribution, etc., to ensure that all pertinent information is captured and catalogued in a practical and efficient manner for ease of future use.

**Figure 10-1: Clayton Valley Lithium Project Drill Hole Locations**





**Table 10-1: Clayton Valley Lithium Project Drill Hole Summary**

Drill hole ID	Easting	Northing	Elevation	Depth (m)	Azimuth	Dip
DCH-01	4,177,532.44	453,237.16	1,362.07	36.0	0	-90
DCH-02	4,177,756.49	453,060.06	1,355.47	112.2	0	-90
DCH-03	4,177,621.83	452,693.52	1,352.95	76.8	0	-90
DCH-04	4,177,602.95	452,957.86	1,354.87	72.5	0	-90
DCH-05	4,177,475.73	453,583.74	1,366.18	79.9	0	-90
DCH-06	4,178,517.61	452,910.54	1,351.24	49.4	0	-90
DCH-07	4,178,003.29	453,065.24	1,362.15	78.6	0	-90
DCH-08	4,178,312.60	453,010.23	1,354.02	78.6	0	-90
DCH-09	4,180,419.62	454,674.65	1,345.25	106.1	0	-90
DCH-10	4,178,378.40	454,162.54	1,366.54	64.3	0	-90
DCH-11	4,178,663.73	453,915.50	1,353.65	103.0	0	-90
DCH-12	4,178,972.27	453,590.83	1,344.67	66.4	0	-90
DCH-13	4,179,497.61	454,640.67	1,359.41	112.2	0	-90
DCH-14	4,179,743.73	454,066.14	1,341.47	81.7	0	-90
DCH-15	4,177,956.58	453,856.77	1,375.84	127.4	0	-90
DCH-16	4,178,312.14	454,184.29	1,367.52	122.5	0	-90
DCH-17	4,177,579.38	453,852.80	1,380.57	124.4	0	-90
GCH-01	4,175,597.19	451,662.30	1,330.77	32.9	0	-90
GCH-02	4,175,646.24	452,543.58	1,362.20	39.0	0	-90
GCH-03	4,176,365.47	452,249.45	1,345.67	60.4	0	-90
GCH-04	4,176,462.17	451,424.50	1,319.92	51.2	0	-90
GCH-05	4,176,929.28	453,778.86	1,390.20	129.5	0	-90
GCH-06	4,176,962.81	452,869.53	1,359.33	100.0	0	-90

**Table 10-2: 2017 Clayton Valley Lithium Project Significant Drill Intervals**

Drill Hole ID	Depth (m)		Length (m)	Ave Li (ppm)
	From	To		
DCH-01	4.4	36.0	31.5	1,140
DCH-02	0.5	54.3	53.8	1,036.4
DCH-03	8.5	36.0	27.4	999
DCH-04	1.5	51.2	49.7	1,126.7
DCH-05	8.5	75.6	67.1	1,129.1
DCH-06	14.6	31.4	16.8	1,012.9
DCH-07	32.2	51.2	19.0	974.3
DCH-09	11.3	69.5	58.2	1,092.5
DCH-10	8.5	64.3	55.8	1,107.5
DCH-11	8.2	63.4	55.2	1,208.6
DCH-13	23.8	106.1	82.3	1,221.2
DCH-15	20.1	124.4	104.2	1,106.4
DCH-16	14.6	122.5	107.9	1,198.6
DCH-17	14.6	109.1	94.5	1,049.9
GCH-04	3.7	29.9	26.2	1,076.7
GCH-05	84.7	109.7	25.0	1,017.5
GCH-06	3.0	100.0	96.9	1,141.6

## 11.0 SAMPLE PRESERVATION, ANALYSES AND SECURITY

### 11.1 Sample Preparation

Samples collected at the project to date consist of bulk surface samples and NQ-size (1.87-inch diameter) drill core. Drill core samples are collected at the drill rig and placed into plastic-coated cardboard boxes by the drill crew and are transported to the core storage and logging facility in Silver Peak by Cypress personnel. Cypress geologists photograph the core as it is received from the drill rig and collect core recovery information prior to preparing sample intervals for assay. Cypress currently splits and assays 100% of the recovered core. Assay samples, generally 10 feet in length, are split using a meat cleaver. One half of the sampled core is returned to the box for geologic logging, and the other half is bagged and tagged with a blind sample number assigned by Cypress.

Surface samples of outcropping mudstone and soil are collected by Cypress geologists using standard hand tools. These samples typically consist of roughly 5 kg of rock or soil, which is placed directly into a cloth sample bag and marked with a blind sample number.

All core and surface samples are delivered to one of two ISL-certified, independent laboratories, ALS Chemex or Bureau Veritas, both located in Reno, by Cypress personnel. Retained core and samples prepped for shipment are stored in the secure core storage facility in Silver Peak (Figure 11-2).

**Photo 11-1: Core Storage**



### 11.2 Analytical Procedures

Samples are crushed, split, and pulverized at the laboratory in preparation for analysis. After pulverizing, two subsamples are selected by the lab for duplicate analysis. While Cypress has submitted at least eight pulp duplicates to a secondary laboratory as check samples, the pulp duplicates are principally used by the primary lab for internal quality control and are not relied on by Cypress to evaluate the overall quality of the sampling program.

Drill core samples are analyzed by 33-element, 4-acid ICP-AES (or ICP-mass spectrometry (MS), depending on the laboratory), and soil and rock chip samples are analyzed by 33-element 4-acid ICP-AES and/or 35-element aqua regia AAS. Select drill core samples have been submitted for iodine by neutron activation analysis (NAA), and a small number of soil samples have been submitted for deionized water leach.

### **11.3 Quality Assurance and Quality Control**

Cypress' in-house Quality Assurance and Quality Control (QA/QC) procedures are currently limited to insertion of a certified standard reference at a rate of one standard sample per 30 core samples. These standards are purchased in durable, pre-sealed aluminum packets. The standard sample assay results are routinely reviewed by Cypress geologists, and to date these results fall within the anticipated range of variability as described by the manufacturer of the standards. The assay results in total, including standard, core, and surface sample data, provide no indication of systematic errors that might be due to sample collection or assay procedures.

### **11.4 Sample Security**

Cypress maintains formal chain-of-custody procedures during all segments of sample transport. Samples prepared for transport to the laboratory are bagged and labeled in a manner which prevents tampering and remain in Cypress's control until released to the laboratory. Upon receipt by the laboratory, samples are tracked by a blind sample number assigned and recorded by Cypress. Retained core and soil samples are securely stored in the core storage facility in Silver Peak, while duplicate and reject materials are stored at the assay laboratory.

### **11.5 QP Opinion on Adequacy**

The QP finds the sample preparation, analytical procedures, and security measures employed by Cypress to be reasonable and adequate to ensure the validity and integrity of the data derived from Cypress' sampling programs to date, with some room for improvement. Based on observations and conversation with Cypress personnel during the QP site visit, and in conjunction with the results of GRE's review and evaluation of Cypress' QA/QC program, the QP makes the following recommendations:

- Formal, written procedures for data collection and handling should be developed and made available to Cypress field personnel. These should include procedures and protocols for field work, geological mapping and logging, database construction, sample chain of custody, and documentation trail. These procedures should also include detailed and specific QA/QC procedures for analytical work, including acceptance/rejection criteria for batches of samples.
- A detailed review of field practices and sample collection procedures should be performed on a regular basis to ensure that the correct procedures and protocols are being followed.
- Review and evaluation of laboratory work should be an on-going process, including occasional visits to the laboratories involved.
- Cypress' existing QA/QC program should be expanded to include at least standards, blanks, and duplicates. All QA/QC control samples sent for analysis should be blind, meaning that the laboratory should not be able to differentiate a check sample from the regular sample stream. The minimum control unit with regard to check sample insertion rate should be the batch of

samples originally sent to the laboratory. Samples should be controlled on a batch by batch basis, and rejection criteria should be enforced. Ideally, assuming a 40-sample batch, the following control samples should be sent to the primary laboratory:

- Two blanks (5% of the total number of samples). Of these, one coarse blank should be inserted for every 4<sup>th</sup> blank inserted (25% of the total number of blanks inserted)
  - Two pulp duplicates (5% of the total number of samples)
  - Two coarse duplicates (5% of the total number of samples)
  - Two standards appropriate to the expected grade of the batch of samples (5% of the total number of samples).
- For drill hole samples, the control samples sent to a second (check) laboratory should be from pulp duplicates in all cases and should include one blank, two sample pulps, and one standard for every 40-sample batch.
  - The purpose of the coarse duplicates is to quantify the variances introduced into the assay grade by errors at different sample preparation stages. Coarse duplicates are inserted into the primary sample stream to provide an estimate of the sum of the assay variance plus the sample preparation variance, up to the primary crushing stage. An alternative to the coarse duplicate is the field duplicate, which in the case of core samples, is a duplicate from the core box (i.e., a quarter core or the other half core). Because sample preparation is currently carried out by the laboratory (and not by Cypress), if coarse duplicates are preferred (to preserve drill core), the coarse duplicates should be sent for preparation and assaying by the second laboratory.
  - QA/QC analysis should be conducted on an on-going basis and should include consistent acceptance/rejection tests. Each round of QA/QC analysis should be documented, and reports should include a discussion of the results and any corrective actions taken.
  - In general, AAS should provide better accuracy for Li analysis than ICP-AES, and comparisons should occasionally be performed.



## **12.0 DATA VERIFICATION**

Data verification efforts included an on-site inspection of the project site and core storage facility, check sampling, and manual auditing of the project database.

### **12.1 Site Inspection**

GRE representative and QP J.J. Brown, P.G., conducted an on-site inspection of the project and Silver Peak core storage facility on February 7 and 8, 2018, accompanied by Cypress geology staff Bob Marvin and Daniel Kalmbach and Cypress CEO Bill Willoughby. While on site, Ms. Brown conducted general geologic field reconnaissance, including inspection of surficial geologic features and ground-truthing of reported drill collar and soil sample locations. The majority of the first day of the site visit was spent at the core storage facility in Silver Peak, where drill core samples were visually inspected and duplicate (half-core) samples were selected to submit for check assay.

Field observations during the site visit generally confirm previous reports on the geology of the project area. Bedrock lithologies, alteration types, and significant structural features are all consistent with descriptions provided in existing project reports, and the author did not see any evidence in the field that might significantly alter or refute the current interpretation of the local geologic setting (as described in Section 7 of this report).

Geographic coordinates for seven of the 14 existing drill hole collar locations were recorded in the field using a hand-held GPS unit. The average variance between field collar coordinates and collar coordinates contained in the project database is roughly 43 meters, which is well outside of the expected margin of error. The drill hole collars are not well marked in the field, and some have no marker at all. The QP recommends that Cypress clearly identify all existing drill holes in the field by installing semi-permanent markers, such as labeled and grouted-in lathe, at each collar location. The existing drill collars should then be professionally surveyed and tied in to the digital topographic surface used for geologic and resource modeling. Future drill holes can be located using survey-grade GPS instrumentation, provided that the GPS coordinates are reasonably similar to those reported for the same locations within the digital topographic surface.

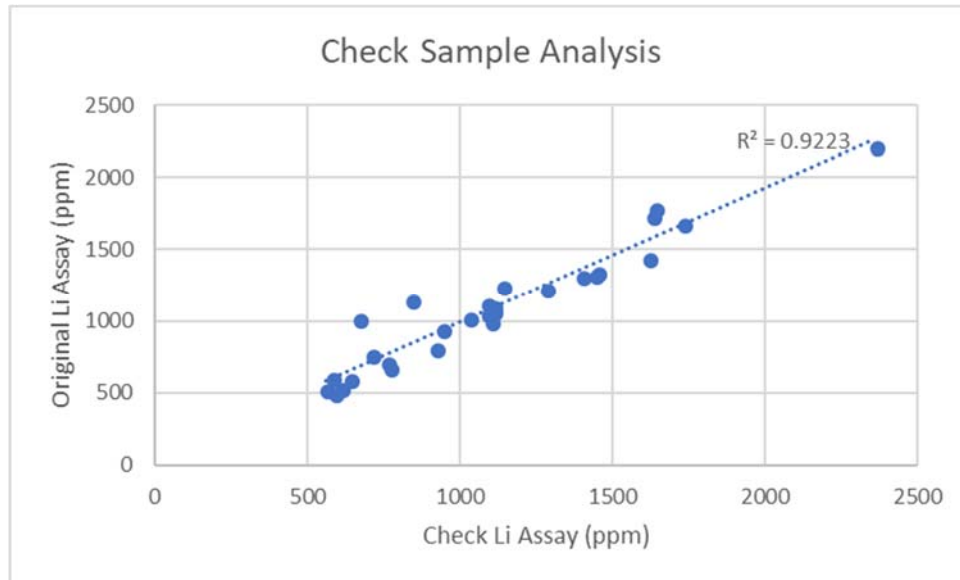
### **12.2 Check Sampling**

During the site visit, 26 core sample intervals from eight separate drill holes were selected for visual inspection and check sampling based on a review of the drill hole logs and original assay results. The sample intervals selected were gradational regarding both assay value and oxidation (i.e., high, moderate, and low original assay values; and above, within, and below the apparent oxidation horizons). Without exception, the core samples inspected accurately reflect the lithologies and sample descriptions recorded on the associated drill hole logs and within the project database.

A total of 29 check samples (26 core intervals and three surface samples) were delivered to ALS (Elko) for analysis using the same sample preparation and analytical procedures as were used for the original samples. A comparison of the original versus check assay values for 24 of the 26 samples shows good correlation between the results, with an  $R^2$  of 0.9223 (Figure 12-1). Two samples were removed from the

sample population: one core sample based on a discrepancy in sample length, and one surface sample for which an original assay value was unavailable.

**Figure 12-1: Check Sample Analysis**



### 12.3 Database Audit

The author completed a manual audit of the digital project database by comparing original assay certificates and drill hole logs to corresponding information contained in the database. The manual audit revealed no discrepancies between the hard-copy information and digital data, and only a single data entry error. The data entry error was easily rectified, and the overall error rate is considered negligible regarding potential impact to the mineral resource estimate.

### 12.4 QP Opinion on Adequacy

Based on the results of the QP's check sampling effort, visual examination of selected core intervals, and the results of the database audit, the QP considers the lithology and assay data contained in the project database to be reasonably accurate and suitable for use in estimating mineral resources and reserves.

Results of the comparison between field and database collar coordinates indicates that additional or improved ground survey may be necessary to increase confidence in the accuracy of the drill hole collar data contained within the database. The QP recommends that Cypress clearly identify all existing drill holes in the field. The existing drill collars should then be professionally re-surveyed and tied in to the digital topographic surface used for geologic and resource modelling.

The database audit work completed to date indicates that occasional inconsistencies and/or erroneous entries are likely inherent or inevitable in the data entry process. The QP recommends that Cypress establish a routine, internal mechanical audit procedure to check for overlaps, gaps, total drill hole length inconsistencies, non-numeric assay values, and negative numbers. The internal mechanical audit should be carried out after any significant update to the database, and the results of each audit, including any corrective actions taken, should be documented and stored for future use in database validation.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Lithium can occur in a wide variety of lithium bearing deposits including brines, pegmatites, hectorite clays, and claystones. The pegmatite deposits host the lithium-bearing mineral spodumene, while the lithium in clay or claystone deposits may be contained in the minerals illite, smectite, hectorite, and lipidiolite. The optimum extraction method depends heavily on the lithium mineral associations. The project is a claystone hosted lithium that is amenable to a conventional dilute sulfuric acid leach followed by solution purification to produce a high grade final lithium product. The selection of the final product pathway is dependent on the intended market with lithium carbonate and lithium hydroxide being the two most common product classes, with lithium carbonate typically being the easiest to produce. Table 13-1 shows the drill hole reference, lithium head grade and laboratory that conducted the test work.

**Table 13-1: Laboratory Sample Log**

Drill Hole ID	Li Grade (ppm)	Laboratory
DCH-5 Oxide	900.0	SGS
DCH-5 Reduced	1,100.0	SGS
DHC-2 Oxide	810.0	CMS
DHC-2 Reduced	720.0	CMS
DCH-16 Oxide	1,020.0	Hazen
DCH-16 Reduced	620.0	Hazen

### 13.1 SGS (DCH-5 Oxide and DCH-5 Reduced)

The preliminary process design for the project is based on initial scoping tests conducted by SGS Canada in August of 2017. These tests indicate the claystone minerals can be digested in dilute sulfuric acid, liberating the lithium as lithium sulfate. Other lixivants were also examined, including water, acetic acid, hydrochloric acid, nitric acid and ammonium sulfate, with sulfuric acid giving the best results. The project's deposit is classified into two categories that include oxidized and reduced materials. The complete assays of the samples tested at SGS are shown in Table 13-2.

**Table 13-2: Clayton Valley Lithium Project Metallurgical Sample Grades (SGS)**

Sample ID	Li %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	MgO %	CaO %	Na <sub>2</sub> O %	K <sub>2</sub> O %	TiO <sub>2</sub> %	P <sub>2</sub> O <sub>5</sub> %	MnO %	Cr <sub>2</sub> O <sub>3</sub> %	V <sub>2</sub> O <sub>5</sub> %	LOI %
Oxidized Sample	0.09	53.9	12.7	3.84	3.65	6.60	1.31	5.65	0.48	0.11	0.08	<0.01	0.02	11.5
Reduced Sample	0.11	53.0	13.1	4.34	3.88	5.89	1.05	6.94	0.50	0.11	0.11	<0.01	0.02	9.96

A summary table of the preliminary leaching tests is shown in Table 13-3.

Generally, these tests were conducted on 250-gram samples split from a bulk sample of each of the mineral zones. The samples were leached at 10% solids for a period of 4 hours with the required dosage of the selected lixiviant. The test temperature was varied to determine the impact of temperature on

**Table 13-3: Scoping Leach Tests (SGS)**

Test ID	Sample ID	Lixiviant	Temp (°C)	% Solids	Acid Cons (kg/t)	Li Closure %	Extractions (%)					Solutions Tenors (mg/L)									
							Li	Ca	Mg	Li	Al	Fe	Mg	Ca	Na	K	Ti	P	Mn	Cr	V
OL-01	Oxidized	DI Water	room	10%	-	-	0.0	0.0	0.0	<2	0.6	0.4	0.9	2.1	78	8.0	<0.1	<5	<0.04	<0.3	<0.2
OL-02	Oxidized	5% H <sub>2</sub> SO <sub>4</sub>	room	10%	142.1	79.2	40.5	15.5	35.6	30	518	335	713	716	423	550	4	47	29	<0.3	1
OL-03	Oxidized	2% (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , pH 4	room	10%	86.4	88.8	5.5	17.1	8.4	3	<0.9	0.2	120	531	410	605	<0.02	<7	12	<0.1	<0.2
OL-04	Oxidized	2% (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , 7% NaCl, pH 4	room	10%	-	86.1	4.8	23.1	7.4	3	<0.9	0.2	124	872	30,700	732	<0.02	<7	14	<0.1	<0.2
OL-05R	Oxidized	1.5M (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , pH 2	room	10%	94.8	87.1	8.8	24.3	10.7	6	38	46.8	194	984	454	854	1	43	20	<0.2	<0.2
OL-06	Oxidized	5% H <sub>2</sub> SO <sub>4</sub>	80	10%	176.9	99.8	76.0	15.8	67.9	67	1,150	1,090	1,480	633	449	954	8	44	48	<2	2
RL-01	Reduced	DI Water	room	10%	-	-	0.0	0.0	0.1	<2	4.1	3.1	3.3	1.7	102	13	0.2	<5	<0.04	<0.2	<0.2
RL-02	Reduced	5% H <sub>2</sub> SO <sub>4</sub>	room	10%	124.0	104.1	57.8	18.5	48.3	68	388	807	1,100	719	358	403	13	49	49	0.5	2
RL-03	Reduced	2% (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , pH 4	room	10%	87.7	99.4	9.0	18.9	7.2	7	<0.9	1	113	519	345	240	<0.02	<7	25	<0.1	<0.2
RL-04	Reduced	2% (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , 7% NaCl, pH 4	room	10%	88.3	96.5	8.3	26.1	6.4	7	<0.9	2	109	805	29,300	250	<0.02	<6	27	<0.1	<0.2
RL-05R	Reduced	1.5M (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , pH 2	room	10%	15.8	102.0	12.8	26.9	11.6	13	47	210	229	964	362	279	2	45	36	<0.2	0.4
RL-06	Reduced	5% H <sub>2</sub> SO <sub>4</sub>	80	10%	171.2	115.4	76.5	18.1	68.0	99	797	1,460	1,660	647	370	734	12	44	59	<2	3.3
RL-07	Reduced	1.5M (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> , pH 2	80	10%	117.3	124.2	48.0	33.8	42.6	47	220	662	795	1,040	385	417	7	52	47	0.5	1.4
RL-08	Reduced	5% H <sub>2</sub> SO <sub>4</sub>	80	20%	155.4	121.6	56.0	8.4	50.5	146	986	1,850	2,500	648	788	874	2	71	112	1.3	4.0
RL-09	Reduced	5% CH <sub>3</sub> COOH	room	10%	76.3	101.3	6.1	85.5	5.3	7	7	8	117	3,760	324	105	0.02	<5	30	<0.1	<0.2
RL-10	Reduced	5% CH <sub>3</sub> COOH	80	10%	96.9	95.9	8.6	85.2	6.7	10	6	42	159	3,930	309	148	<0.02	<5	31	<0.1	<0.2
RL-11	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	50	10%	-85.3*	153.2	83.5	29.0	71.6	132	857	1,630	1,800	1,100	370	811	38	47	60	1.2	3.5
RL-12	Reduced	5% HCl	50	10%	45.2	126.4	77.7	90.4	68.6	100	779	1,480	1,660	3,690	367	738	27	43	58	1.0	3.2
RL-13	Reduced	5% HNO <sub>3</sub>	50	10%	136.3	51.5	3.7	71.2	3.1	<2	768	2,190	39	1,000	2730	<10	60	61	115	7.5	6.0

\* Note – negative acid consumption can result from free acid estimation based on pH measurements and liquid accounting.



lithium extraction. The leach residue was filtered and washed and the lithium and other extracted components analyzed by ICP. The residue was dried and weighed to determine weight loss and the final lithium mass balance.

The test results indicate that water, acetic acid, nitric acid and ammonium sulfate were ineffective at extracting the lithium from this material, with extractions ranging from 0% to a maximum of 48%. Hydrochloric acid achieved a lithium extraction of 77.7%, but this is not a commercially viable lixiviant. Dilute sulfuric acid reached extractions as high as 76% from the oxidized material and 83.5% from the reduced sample.

There are several important issues with this test work that need to be taken into consideration. Lithium is a light element, and the use of ICP for its analysis is not the best quantitative method. Typically, atomic absorption spectroscopy (AAS) is used when Li is analyzed at these concentrations. ICP provides reasonable results but is subject to a larger analytical detection limit. The net result of this is that the mass balance closure on these tests is not as good as it could be, but there are other considerations in this result. The laboratory conducting the test work failed to assay the lithium in the wash water solution, which would negatively impact the mass balance closure and the lithium extraction. Further, the residual free acid in the wash solution was not analyzed in all cases, resulting in higher predicted acid consumptions being reported.

The test work was reevaluated to examine the impact of including the wash water in the final results. In most cases a ratio was employed based on dilution to apply a lithium grade and free acid concentration to the final wash water. The results of this evaluation for the sulfuric acid leach tests are shown in Table 13-4.

**Table 13-4: Adjusted Scoping Test Results (SGS)**

Test ID	Sample ID	Lixiviant	Temp °C	% solids	Original without Wash Water			Adjusted			Change		
					Acid Cons kg/t	Li Closure %	Extractions (%) Li	Acid Cons kg/t	Li Closure %	Extractions (%) Li	Acid Cons Delta	Li Closure	Extractions (%) Li
OL-02	Oxidized	5% H2SO4	room	10%	159.8	77.4	39.1	142.1	79.2	40.5	-11%	2%	4%
OL-06	Oxidized	5% H2SO4	80	10%	203.8	92.3	74.1	176.9	99.8	76.0	-13%	8%	3%
RL-02	Reduced	5% H2SO4	room	10%	159.8	97.5	54.9	124.0	104.1	57.8	-22%	7%	5%
RL-06	Reduced	5% H2SO4	80	10%	200.8	106.0	74.4	171.2	115.4	76.5	-15%	9%	3%
RL-08	Reduced	5% H2SO4	80	20%	166.2	105.2	49.2	155.4	121.6	56.0	-6%	16%	14%
RL-11	Reduced	10% H2SO4	50	10%	106.6	128.3	80.3	85.3*	153.2	83.5	-180%	19%	4%

\*Note – negative acid consumption can result from free acid estimation based on pH measurements and liquid accounting.

As shown in Table 13-4, the lithium extraction increased in all cases when the wash water was included, and the acid consumption decreased. Mass balance closure typically improved, but in some cases, it was evident that the mass closure was poor either due to assay error or sample variations.

Although this test work is preliminary in nature it does suggest that a dilute sulfuric acid leach is a viable method of extracting the lithium from the project’s deposit.

## 13.2 CMS (DHC-2 Oxide and DCH-2 Reduced)

Additional test work was conducted by Continental Metallurgical Services, LLC (CMS) on the project (2018). In this test, a more detailed investigation of the metallurgy was undertaken on both the oxidized and reduced material (DHC-2 Oxide and DHC-2 Reduced).

Mineralogical examination indicated that the oxide sample contains 54.2% illite clays and 17.4% smectite clays. Other silicates measured 18.6%, with quartz and glaucophane as the main contributor. Lipidiolite was measured at 2.3%.

The reduced sample contained 44.1% illite clays and 26.0% smectite clays. Other silicates measured 13.8%, with quartz and glaucophane as the main contributor. Lipidiolite was measured at 1.49%.

Bond work index testing indicated that the oxide and reduced samples had a work index of 1 to 1.5 kilowatt-hours/tonne (kWhr/t) and can be categorized as very soft. Grinding may or may not be required to achieve liberation as the samples digested easily in water with minimal coarse solids present. The material examined was 80% passing 270 mesh (53 microns [ $\mu\text{m}$ ]) once it was digested in water.

Flotation tests conducted with sodium oleate resulted in no upgrading of the lithium; there was an equal lithium grade in both the concentrate and tailings. De-sliming, as a form of upgrading, was also examined with the settled fraction containing 50% of the lithium in 24% of the overall mass. De-sliming or other forms of upgrading may be further evaluated for industrial application.

Generally, these tests were conducted on 100-gram samples split from a bulk sample of each of the mineral zones. The samples were leached at 10% solids for a period of 1 hour with the required dosage of the selected lixiviant. The test temperature was varied to determine the impact of temperature on lithium extraction. The leach residue was filtered and washed, and the lithium and other extracted components analyzed by ICP/AAS. The residue was dried and weighed to determine weight loss and the final lithium mass balance. Leach tests were also conducted using aqua regia, nitric acid, hydrochloric acid, sulfuric acid, and acetic acid. The results of the leach testing are shown in Table 13-5.

**Table 13-5: Scoping Leach Tests (CMS)**

Test ID	Sample	Lixiviant	Leach Time (min)	Solids (%)	Temp (deg C)	Li Rec (%)
Li-A1	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	60	17%	50	64%
Li-A2	Oxidized	10% H <sub>2</sub> SO <sub>4</sub>	60	17%	50	62%
Li-A3	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	60	17%	50	71%
Li-A4	Reduced	10% HNO <sub>3</sub>	60	17%	50	35%
Li-A5	Oxidized	10% HNO <sub>3</sub>	60	17%	50	35%
Li-A6	Reduced	10% HCl	60	17%	50	20%
Li-A7	Oxidized	10% HCl	60	17%	50	23%
Li-A8	Reduced	10% CH <sub>3</sub> COOH	60	17%	50	9%
Li-A9	Reduced	10% HCl/HNO <sub>3</sub>	60	17%	50	37%
Li-A10	Oxidized	10% HCl/HNO <sub>3</sub>	60	17%	50	34%
Li-P1	Oxidized	10% H <sub>2</sub> SO <sub>4</sub>	60	36%	Ambient	24%
Li-P2	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	60	36%	Ambient	32%
Li-B1	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	30	17%	50	48%

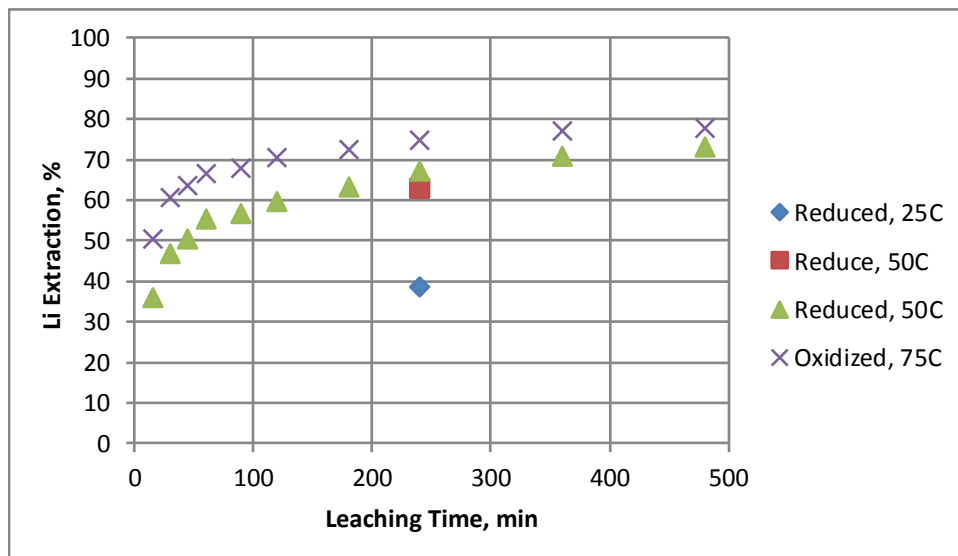
Test ID	Sample	Lixiviant	Leach Time (min)	Solids (%)	Temp (deg C)	Li Rec (%)
Li-B2	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	90	17%	50	63%
Li-B3	Reduced	10% H <sub>2</sub> SO <sub>4</sub>	30	17%	50	41%
Li-OH	Reduced	NaOH pH 11	60	25%	80	0%

As shown by the results, sulfuric acid leaching gave the best leach extraction, approaching or exceeding 70%. Significant magnesium and calcium also leached. The other lixiviants did not provide any significant lithium results similar to that exhibited in the previous tests by conducted SGS. It should be noted that these leach tests were significantly shorter in time than the earlier test conducted by SGS.

### 13.3 Hazen (DCH 16 Oxide and Reduced)

Currently Hazen Research Inc (Hazen) is conducting additional leach testing to further define the leaching kinetics associated with longer leach times at lower temperatures and acid dosages (DHE-16 Oxide and DHE-16 Reduced). This is the preliminary approach to optimizing the leach economics in an attempt to trade off temperature and acid concentrations for increased retention time. From Figure 13-1, it is apparent that increased retention times improve lithium extraction and an extension of these times beyond 8 hours will likely yield further extraction increases. From previous test work, it is apparent that very high lithium extractions can be achieved with more aggressive leaching conditions, better than 80% lithium extraction is expected. Additional detailed test work is required to define the leaching parameters and reagent consumptions.

Figure 13-1: Preliminary Leach Kinetics, 5% Sulfuric Acid (Hazen)



Preliminary tests were conducted related to the production of a final lithium product as lithium carbonate. Initial indications are that conventional sequential precipitation processes are capable of removing deleterious elements such as iron, aluminum, magnesium, and calcium prior to the precipitation of final lithium carbonate. Lithium hydroxide and lithium carbonate production from sulfate leach solutions are well-defined processes.

Acid consumption appears to be less than 100 kg/tonne of clay material processed, and lime consumption for neutralizing the PLS and precipitating lithium-product appears to be low, in the range of 30 kg/tonne of material processed.



## 14.0 MINERAL RESOURCE ESTIMATE

The Mineral Resource Estimate reported for the project was completed under the direction of Terre Lane, Principal of GRE and a NI 43-101 Qualified Person. Resource modeling and resource estimation was done with Techbase® software.

### 14.1 Definitions

Mineral resources stated for the project conform to the definitions adopted by the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM) as amended May 10, 2014, and meet criteria of those definitions, where:

A Mineral Resource is a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

A "Measured Mineral Resource" is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

An "Indicated Mineral Resource" is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

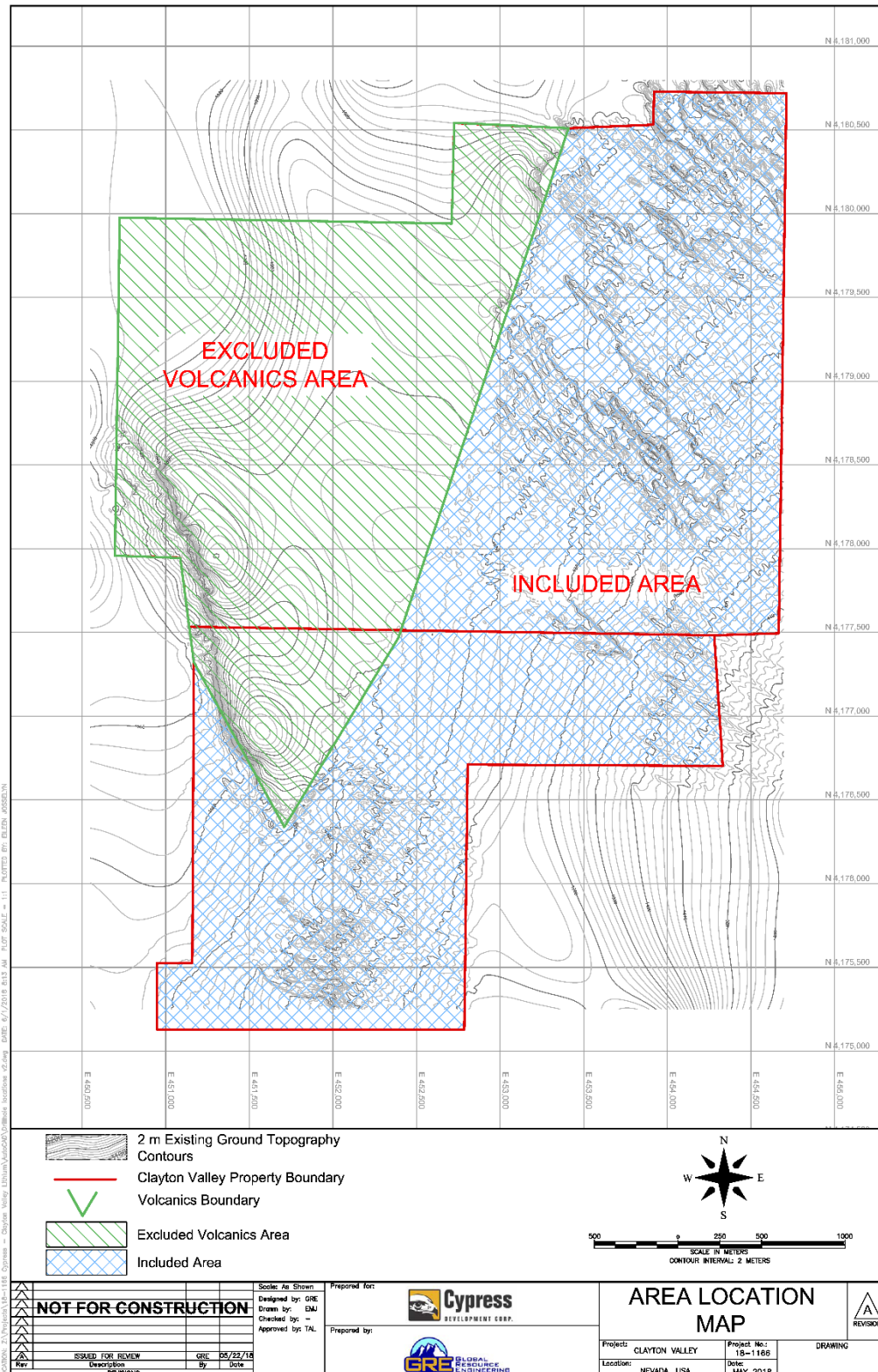
An "Inferred Mineral Resource" is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

### 14.2 Estimation Model

Resource estimation was done using Techbase® software. The resource estimate includes all sedimentary units located in the eastern and southern part of the volcanic units. As there is no drilling in the volcanic

areas, they were excluded from the resource estimate (see Figure 14-1). The attributes for the area included in the Resource Estimate are shown in Table 14-1.

**Figure 14-1: Included and Excluded Areas in the Resource Estimate**



**Table 14-1: Area Attributes**

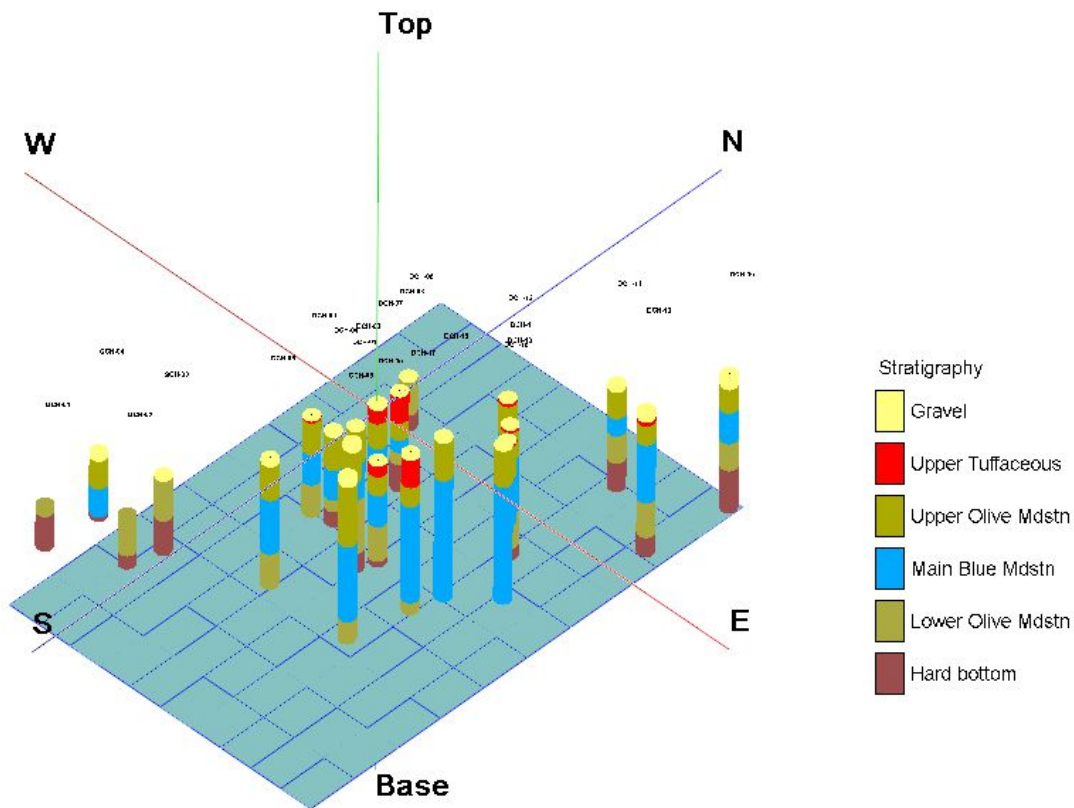
	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Azimuth</b>
Minimum (m)	450,666.67	4,175,300.00	1,310.00	
Maximum (m)	454,666.00	4,180,733.30	1,435.00	
Baseline				90 degrees

### 14.3 Data Used for the Lithium Estimation

#### 14.3.1 Drill Holes

The mineral resource estimate incorporates geologic and assay results from drilling on the project, including 17 drill holes on the Dean claim blocks and six drill holes on the Glory claim blocks (Figure 10-1). Data provided by Cypress and verified by J.J. Brown, included drill hole data for all drill holes, collar coordinates, drill hole direction (azimuth and dip) Table 10-1), lithology, sampling, and assay data. This study uses 23 drill holes, totaling 1,905 meters, with an average depth of 82.8 meters per hole. Topography was derived from land survey. Drilling was limited to the sedimentary areas.

**Figure 14-2: Clayton Valley 3D View of Drill Hole Logs**



#### 14.3.2 Assay Data

The assay data included hole ID, sample weight, lithium in ppm, rock code, lithology code, recovery percentage, and lithology description. The majority of 666 assays for % Li analysis were done on five to ten-foot assay intervals.

### 14.3.3 Specific Gravity

GRE used a specific gravity (SG) of 1.7 g/cm<sup>3</sup> for all lithological units. This SG is comparable to other similar lithium deposits. GRE recommends additional test work to determine lithology-specific SGs.

## 14.4 High Grade Capping

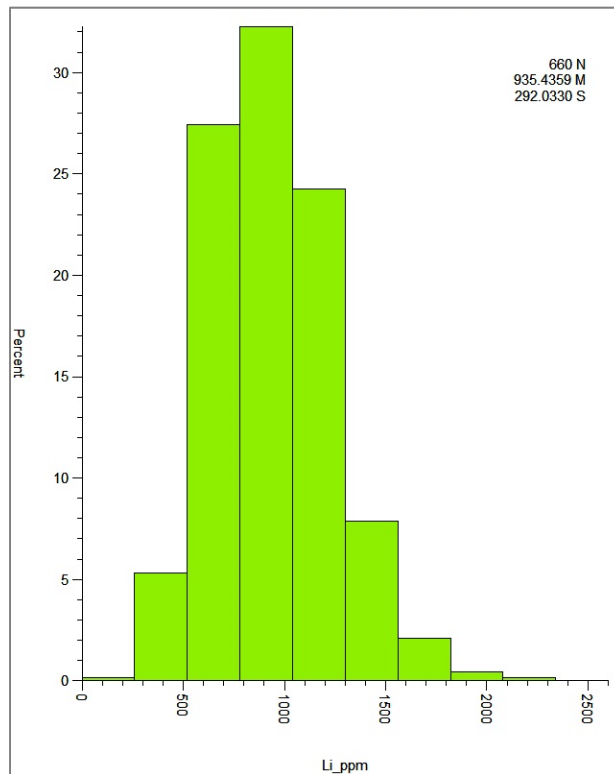
GRE produced histograms and cumulative frequency plots of the assay data. If the cumulative frequency plots form a relatively straight line, and the histograms show a nearly normal distribution. Capping is not needed.

### 14.4.1 Assay

The assay data (excluding gravel) contains a total of 660 Lithium assays, ranging from 165.7 to 2,240 ppm. A histogram of the project's assay data is provided as Figure 14-3.

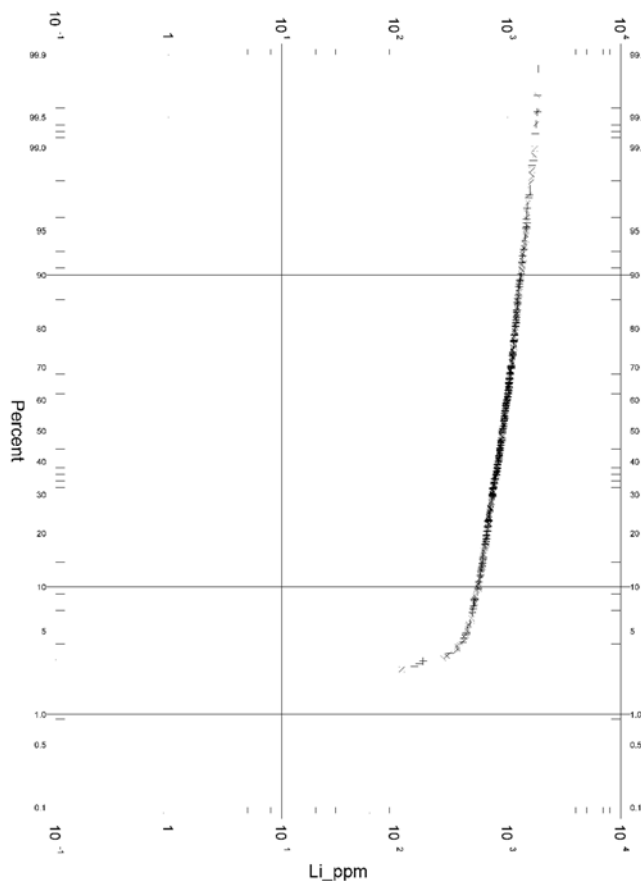
A cumulative frequency plot of the assay data is shown in Figure 14-4. The cumulative frequency plot indicates a log normal distribution with very few outliers. One assay value over 2,000 ppm occurs in the data. The data approximates a straight line, which is consistent with a nearly normal distribution and one population.

**Figure 14-3: Clayton Valley Lithium Project Assay Data Histogram**





**Figure 14-4: Cumulative Frequency Plot, Clayton Valley Lithium Project Assay Data**



### 14.4.2 Composite

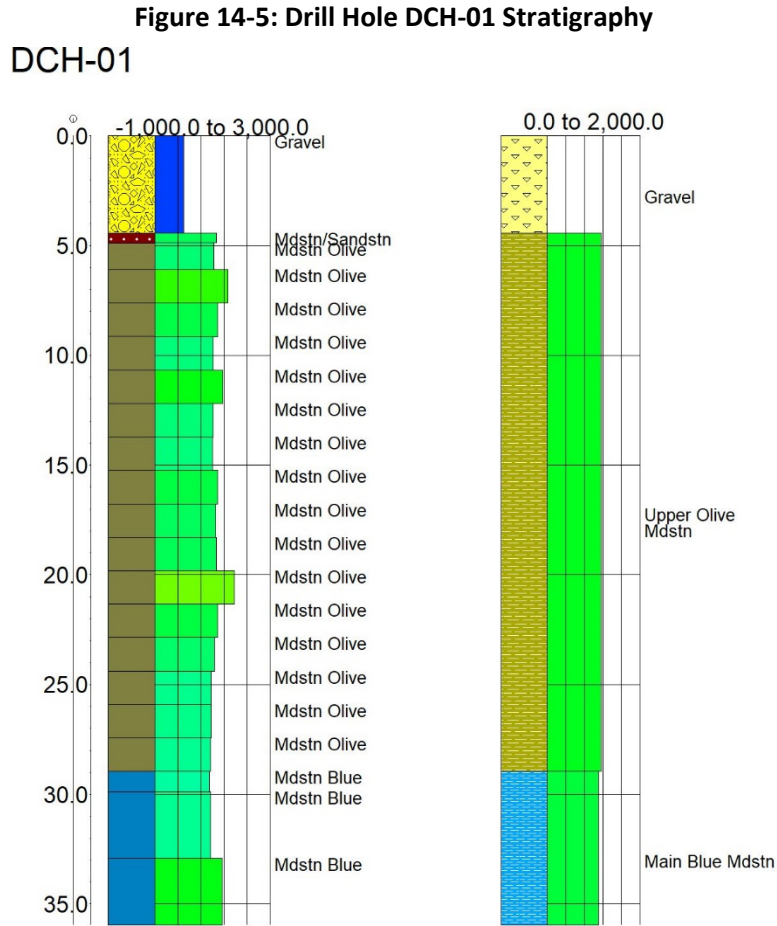
The project’s assaying was performed almost exclusively using 1.52- or 3.048-meter-long (or 5.0- or 10.0-foot-long) sample intervals. GRE created a single composite for each lithologic unit in each drill hole. The composite intervals are shown in Table 14-2. Examples of the deposit stratigraphy are illustrated in Figure 14-5 and Figure 14-6.

**Table 14-2: Composite Intervals**

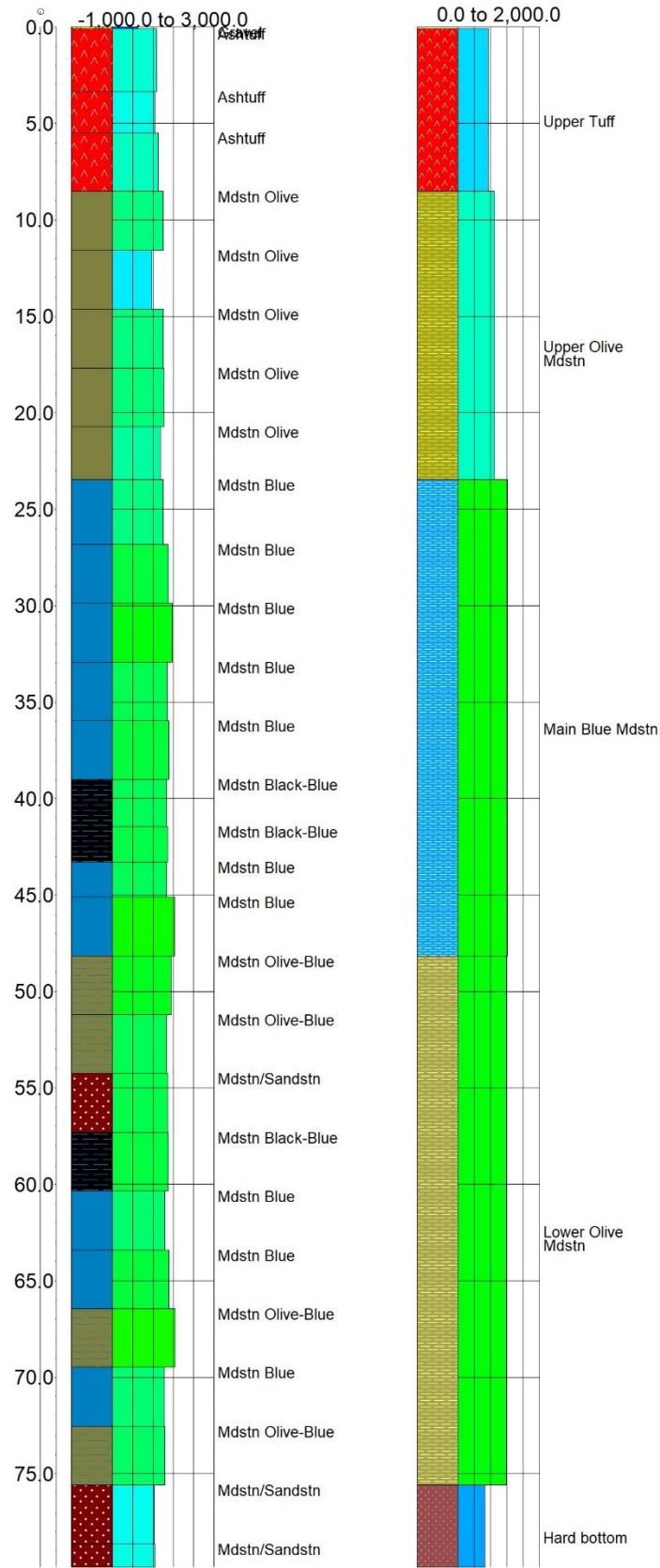
Hole_ID	Lithology	from(ft)	to(ft)	length(ft)	Li Average grade (ppm)
DCH-01	Gravel	0	14.5	14.5	0
DCH-01	Upper Olive Mdstn	14.5	95	80.5	1156.58
DCH-01	Main Blue Mdstn	95	118	23	1108.7
DCH-02	Gravel	0	1.5	1.5	0
DCH-02	Upper Olive Mdstn	1.5	84.9	83.4	953.85
DCH-02	Main Blue Mdstn	84.9	178	93.1	1071.37
DCH-02	Lower Olive Mdstn	178	318	140	777.14
DCH-02	Hard bottom	318	368	50	480
DCH-03	Gravel	0	1	1	0
DCH-03	Upper Tuffaceous	1	6	5	708
DCH-03	Upper Olive Mdstn	6	88	82	997.93
DCH-03	Main Blue Mdstn	88	168	80	789.13

Hole_ID	Lithology	from(ft)	to(ft)	length(ft)	Li Average grade (ppm)
DCH-03	Lower Olive Mdston	168	252	84	803.1
DCH-04	Gravel	0	5	5	0
DCH-04	Upper Olive Mdston	5	91.25	86.25	1059.77
DCH-04	Main Blue Mdston	91.25	168	76.75	1186.81
DCH-04	Lower Olive Mdston	168	198	30	816.67
DCH-04	Hard bottom	198	238	40	945
DCH-05	Gravel	0	0.25	0.25	0
DCH-05	Upper Tuffaceous	0.25	28	27.75	743.96
DCH-05	Upper Olive Mdston	28	77	49	893.88
DCH-05	Main Blue Mdston	77	158	81	1206.17
DCH-05	Lower Olive Mdston	158	248	90	1186.67
DCH-05	Hard bottom	248	262	14	658.57
DCH-06	Gravel	0	2	2	0
DCH-06	Lower Olive Mdston	2	88	86	877.97
DCH-06	Hard bottom	88	128	40	955.5
DCH-07	Gravel	0	6	6	0
DCH-07	Upper Tuffaceous	6	41	35	768
DCH-07	Upper Olive Mdston	41	105.8	64.8	801.88
DCH-07	Main Blue Mdston	105.8	168	62.2	968.49
DCH-07	Lower Olive Mdston	168	258	90	631.11
DCH-08	Gravel	0	1.5	1.5	0
DCH-08	Upper Tuffaceous	1.5	69	67.5	700.07
DCH-08	Upper Olive Mdston	69	114	45	808.44
DCH-08	Main Blue Mdston	114	146	32	801.88
DCH-08	Lower Olive Mdston	146	178	32	800.63
DCH-08	Hard bottom	178	248	70	586.57
DCH-09	Gravel	0	27	27	185.56
DCH-09	Upper Olive Mdston	28	88	61	1156.72
DCH-09	Main Blue Mdston	88	168	80	1097.75
DCH-09	Lower Olive Mdston	168	238	70	920
DCH-09	Hard bottom	238	348	110	785.73
DCH-10	Gravel	0	0.25	2.5	0
DCH-10	Upper Tuffaceous	0.25	5	2.5	481.6
DCH-10	Upper Olive Mdston	5	88	83	900.33
DCH-10	Main Blue Mdston	88	211	123	1102.37
DCH-11	Gravel	0	1	1	0
DCH-11	Upper Tuffaceous	1	8	7	829.43
DCH-11	Upper Olive Mdston	8	78	70	1136.99
DCH-11	Main Blue Mdston	78	218	140	1182.53
DCH-11	Lower Olive Mdston	218	308	90	827.34
DCH-11	Hard bottom	308	338	30	710.67
DCH-12	Gravel	0	2	2	0
DCH-12	Upper Tuffaceous	2	10	8	496.8
DCH-12	Upper Olive Mdston	10	88	78	663.62
DCH-12	Main Blue Mdston	88	168	80	759.82
DCH-12	Lower Olive Mdston	168	198	30	609.97

Hole_ID	Lithology	from(ft)	to(ft)	length(ft)	Li Average grade (ppm)
DCH-12	Hard bottom	198	218	20	581.2
DCH-13	Gravel	0	18	18	178
DCH-13	Upper Tuffaceous	18	28	10	1008
DCH-13	Upper Olive Mdstn	28	78	50	748.2
DCH-13	Main Blue Mdstn	78	228	150	1219.71
DCH-13	Lower Olive Mdstn	228	318	90	1305.08
DCH-13	Hard bottom	318	368	50	985.02
DCH-14	Gravel	0	9.5	9.5	0
DCH-14	Upper Olive Mdstn	9.5	78	68.5	670.05
DCH-14	Main Blue Mdstn	78	123	45	775.93
DCH-14	Lower Olive Mdstn	123	194	71	764.54
DCH-14	Hard bottom	194	268	74	702.54
DCH-15	Gravel	0	5	5	0
DCH-15	Upper Olive Mdstn	5	104	99	881.85
DCH-15	Main Blue Mdstn	104	418	314	1127.93
DCH-16	Gravel	0	4	4	359.2
DCH-16	Upper Olive Mdstn	4	98	94	833.76
DCH-16	Main Blue Mdstn	98	402	304	1242.67
DCH-17	Gravel	0	6.5	6.5	0
DCH-17	Upper Tuffaceous	6.5	78	71.5	727.2
DCH-17	Upper Olive Mdstn	78	128	50	765.66
DCH-17	Main Blue Mdstn	128	378	250	1114.27
DCH-17	Lower Olive Mdstn	378	408	30	779.47
GCH-01	Lower Olive Mdstn	0	18	18	675.1
GCH-01	Hard bottom	18	108	90	592.49
GCH-02	Lower Olive Mdstn	0	94	94	724.87
GCH-02	Hard bottom	94	128	34	638.41
GCH-03	Gravel	0	5	5	0
GCH-03	Lower Olive Mdstn	5	108	103	762.49
GCH-03	Hard bottom	108	198	90	541.67
GCH-04	Gravel	0	12	12	0
GCH-04	Upper Olive Mdstn	12	84.5	72.5	1076.54
GCH-04	Main Blue Mdstn	84.5	158	73.5	837.26
GCH-04	Hard bottom	158	168	10	497.9
GCH-05	Gravel	0	18	18	410.6
GCH-05	Upper Olive Mdstn	18	172	154	680.5
GCH-05	Main Blue Mdstn	172	368	196	876.75
GCH-05	Lower Olive Mdstn	368	425	57	748.58
GCH-06	Gravel	0	10	10	115.7
GCH-06	Upper Olive Mdstn	10	98	88	1145.38
GCH-06	Main Blue Mdstn	98	238	140	1308.76
GCH-06	Lower Olive Mdstn	238	328	90	885.33



**Figure 14-6: Drill Hole DCH-05 Stratigraphy**  
DCH-05





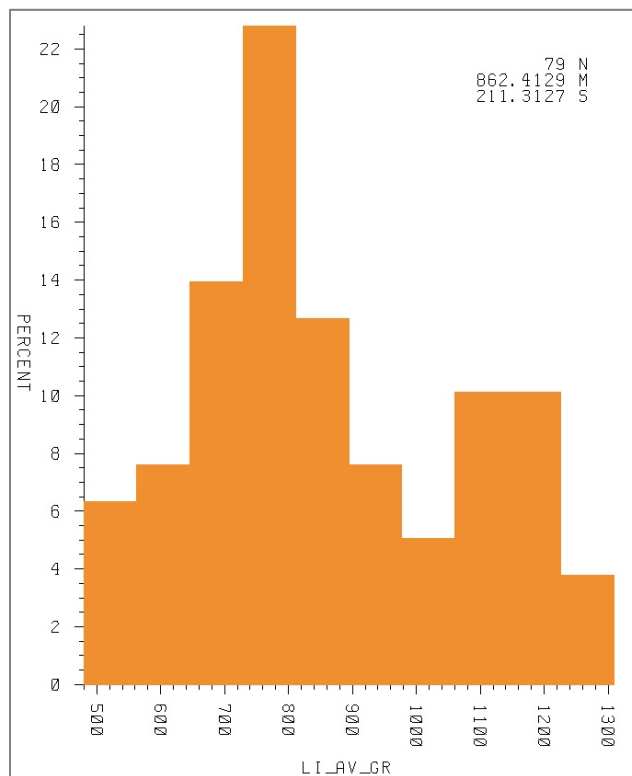
The statistics for the raw assay data and composited data are shown in Table 14-3.

**Table 14-3: Sample and Composite Summary Statistics**

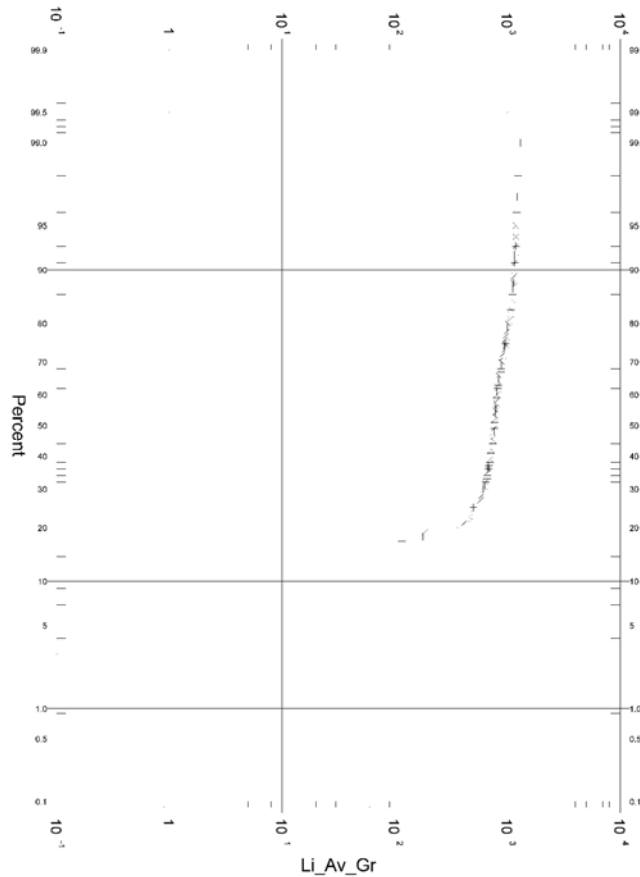
Statistic	Sample Values	Composite Values
	Li (ppm)	Li (ppm)
Number	681	79
Mean	908.16	862.41
Standard Deviation	326.15	211.31
Variance	106,372.52	44,653.06
Maximum	2,240.0	1,308.76
Minimum	0	480
Range	2,240.0	828.76
Coefficient of Variance	35.91	24.50

The composite data contains a total of 100 Lithium average grade results, ranging from 0 to 1,308.76 ppm. A histogram of the composite data is provided as Figure 14-7. A cumulative frequency plot of the composite lithium average grade values above 0 ppm is shown in Figure 14-8. The data approximates a straight line, which is consistent with a log-normal distribution and one population.

**Figure 14-7: Clayton Valley Lithium Project Composite Data Histogram**



**Figure 14-8: Cumulative Frequency Plot, Clayton Valley Lithium Project Composite Data**



## 14.5 Estimation Methodology

The project's lithium claystone deposit is typical of other types of sedimentary deposits, like limestone, potash, soda ash and coal. There is very high lateral continuity of the sedimentary beds with relatively low variability of grade within each of the beds. All drill holes intersected the mineralized beds. The southern end of the Glory claim block appears to be in an uplifted fault block.

GRE used Techbase to create a 2-dimensional (2-D) gridded model of the thickness and grade of each of the sedimentary beds of the project. The thickness and grade of six lithologic units was modeled: gravel, upper tuff, upper olive, main blue, lower olive, and hard bottom. The units are visually distinguished and logged by color and physical characteristics like grain size.

GRE created a single composite of assay data for each sedimentary unit in each drill hole. Control points were added for holes that did not intersect all the units, due to the drill capabilities or erosion, to control unit thickness.

The bottom elevation of each sedimentary layer was then modeled, creating a gridded surface elevation model. Thickness was calculated as the difference in elevation from the bottom of one unit to the bottom of the underlying unit. No drill hole past through the lowest (hard bottom) unit, all ended in above cutoff grade material. GRE therefore extended the depth of the hard bottom 10 meters below the actual drill hole depth.

Table 14-4 provides search parameters used in the modeling.

**Table 14-4: Search Parameters**

Lithology	Ellipsoid Distance	Major Axis Azimuth
Upper Tuff	1,500 x 750	20
Upper Olive	1,500 x 750	20
Main Blue	1,500 x 1,000	20
Lower Olive	1,500 x 1,000	20
Hard Bottom	1,500 x 1,000	20

### 14.5.1 Variography

GRE generated variograms on the composites values using Techbase software. The analysis was used to determine the size and orientation of the search ellipsoid for the ID2 grade estimate. First, an omnidirectional analysis was performed for each lithologic unit to obtain the maximum search distance for the grade estimate. Afterwards, each lithologic unit was analyzed to determine the orientation and relative length of the search ellipsoid axes using the maximum search distance. The analysis indicates a nugget of 8,000, a sill of 30,000, and ranges of 1,000 to the east and 1,500 to the north, and 1,500 globally. Figure 14-9 through Figure 14-11 show the variograms for the Main Blue unit.

**Figure 14-9: Main Blue Variogram East**

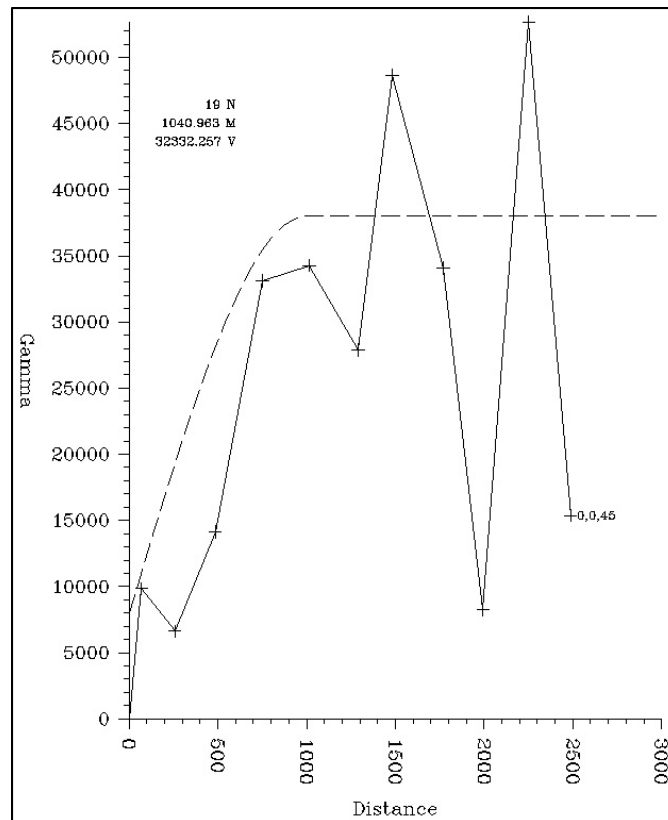


Figure 14-10: Main Blue Variogram Global

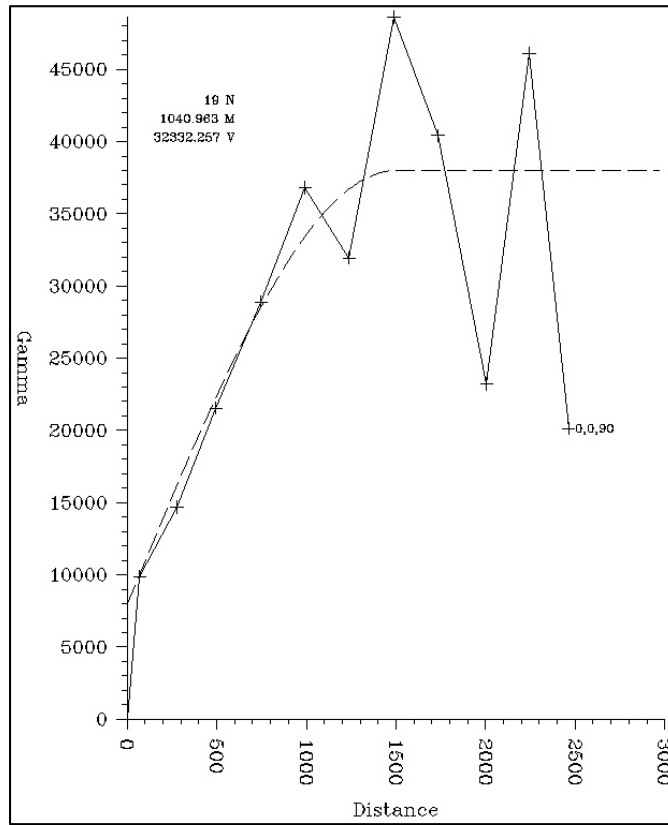
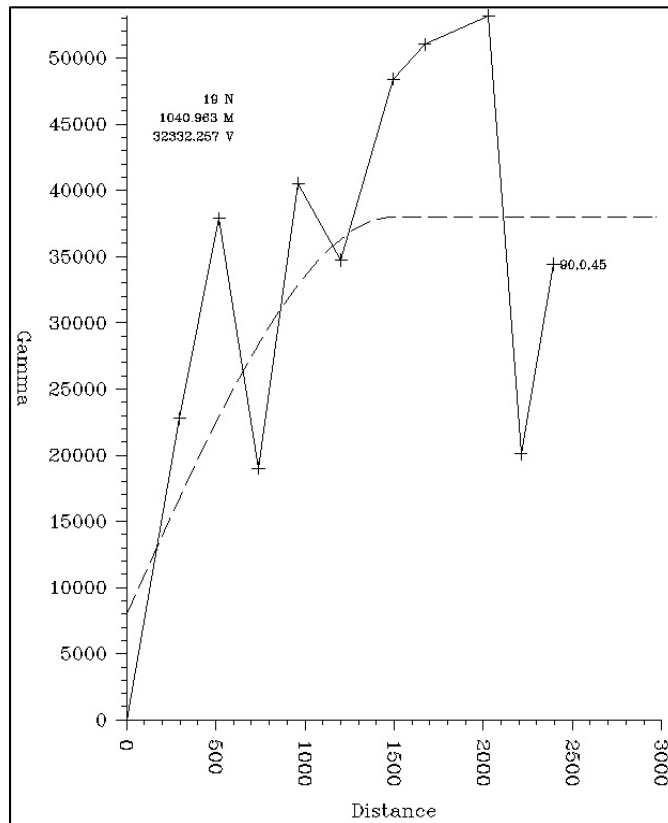


Figure 14-11: Main Blue Variogram North



### 14.5.2 Grade Modeling and Resource Categories

Grade was estimated using an inversed distance squared algorithm from a minimum of two composites and a maximum of 4 composites. The Mineral Resource was categorized as indicated within 300 meters of a drill hole, which represents 1/5 of the overall variogram range, and inferred farther than 300 meters out to a maximum of the variogram range. These parameters are more conservative than typical industry practice.

### 14.6 Plan views for all six major lithology units were prepared with cell dimensions of 10 m x 10 m showing cells color coded by resource category – green for inferred and blue for indicated. Plan views also were made with cells color coded for different ranges of lithium grade. The two plan views for Upper Olive Mudstone are presented in Economic Parameters

The following parameters were input into the model to generate a pit so that pit-constrained resources could be calculated:

- Mining cost: \$1.00/tonne
- Processing cost: \$13.00/tonne processed
  - 100 kg acid/tonne @ \$80/tonne delivered
  - \$1.25 labor/tonne
  - \$1.50 power/tonne
  - \$2.25/tonne other leach reagents
- G&A cost: \$1.00/tonne
- Lithium recovery: 80%
- Lithium price: \$10,000/ tonne of lithium carbonate (LiCO<sub>3</sub>) (5.323 kg LiCO<sub>3</sub> / kg Li)

These costs reflect a 10,000 to 15,000 tonne per day mining operation in soft sedimentary material that does not require blasting.

Half of the processing costs are acid costs. Further study should be conducted on construction of an acid plant and producing sulfuric acid on site.

GRE used these economic parameters to design a preliminary pit, as shown in Figure 14-15.

### 14.7 Cutoff Grade

GRE calculated the cutoff grade as follows:

Mining	\$1.00/tonne
Process	\$13.00/tonne
G&A	\$1.00/tonne
Total	\$15.00/tonne

Figure 14-12 and Figure 14-13, respectively.



For the five main lithology units (not including Gravel), contours of lithium average grade were prepared. The lithium grade contours for the Main Blue mudstone unit are presented in Figure 14-14.

## 14.8 Economic Parameters

The following parameters were input into the model to generate a pit so that pit-constrained resources could be calculated:

- Mining cost: \$1.00/tonne
- Processing cost: \$13.00/tonne processed
  - 100 kg acid/tonne @ \$80/tonne delivered
  - \$1.25 labor/tonne
  - \$1.50 power/tonne
  - \$2.25/tonne other leach reagents
- G&A cost: \$1.00/tonne
- Lithium recovery: 80%
- Lithium price: \$10,000/ tonne of lithium carbonate ( $\text{LiCO}_3$ ) (5.323 kg  $\text{LiCO}_3$  / kg Li)

These costs reflect a 10,000 to 15,000 tonne per day mining operation in soft sedimentary material that does not require blasting.

Half of the processing costs are acid costs. Further study should be conducted on construction of an acid plant and producing sulfuric acid on site.

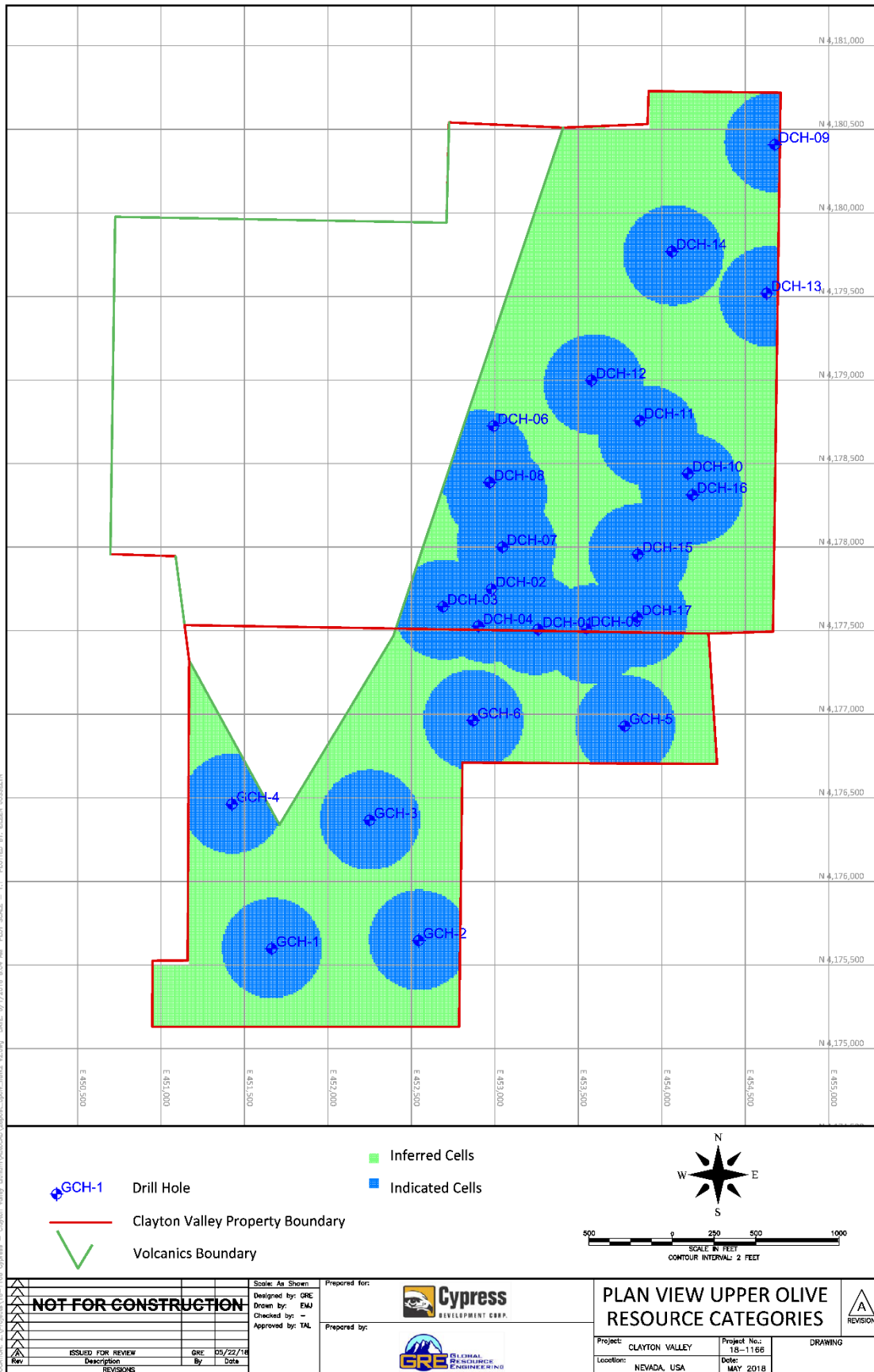
GRE used these economic parameters to design a preliminary pit, as shown in Figure 14-15.

## 14.9 Cutoff Grade

GRE calculated the cutoff grade as follows:

Mining	\$1.00/tonne
Process	\$13.00/tonne
<u>G&amp;A</u>	<u>\$1.00/tonne</u>
Total	\$15.00/tonne

**Figure 14-12: Plan View of Upper Olive Mudstone Unit with Resource Categories**



LOCATION: Clayton Valley Lithium AUC/DCD/Workshop/IBMG/Planning DATE: 5/7/2018 8:04 AM PLOT SCALE = 1:1 PLOTTED BY: ELLEN JOSEPH

<b>NOT FOR CONSTRUCTION</b>		
ISSUED FOR REVIEW	GRE	05/22/18
Description	By	Date
REVISIONS		

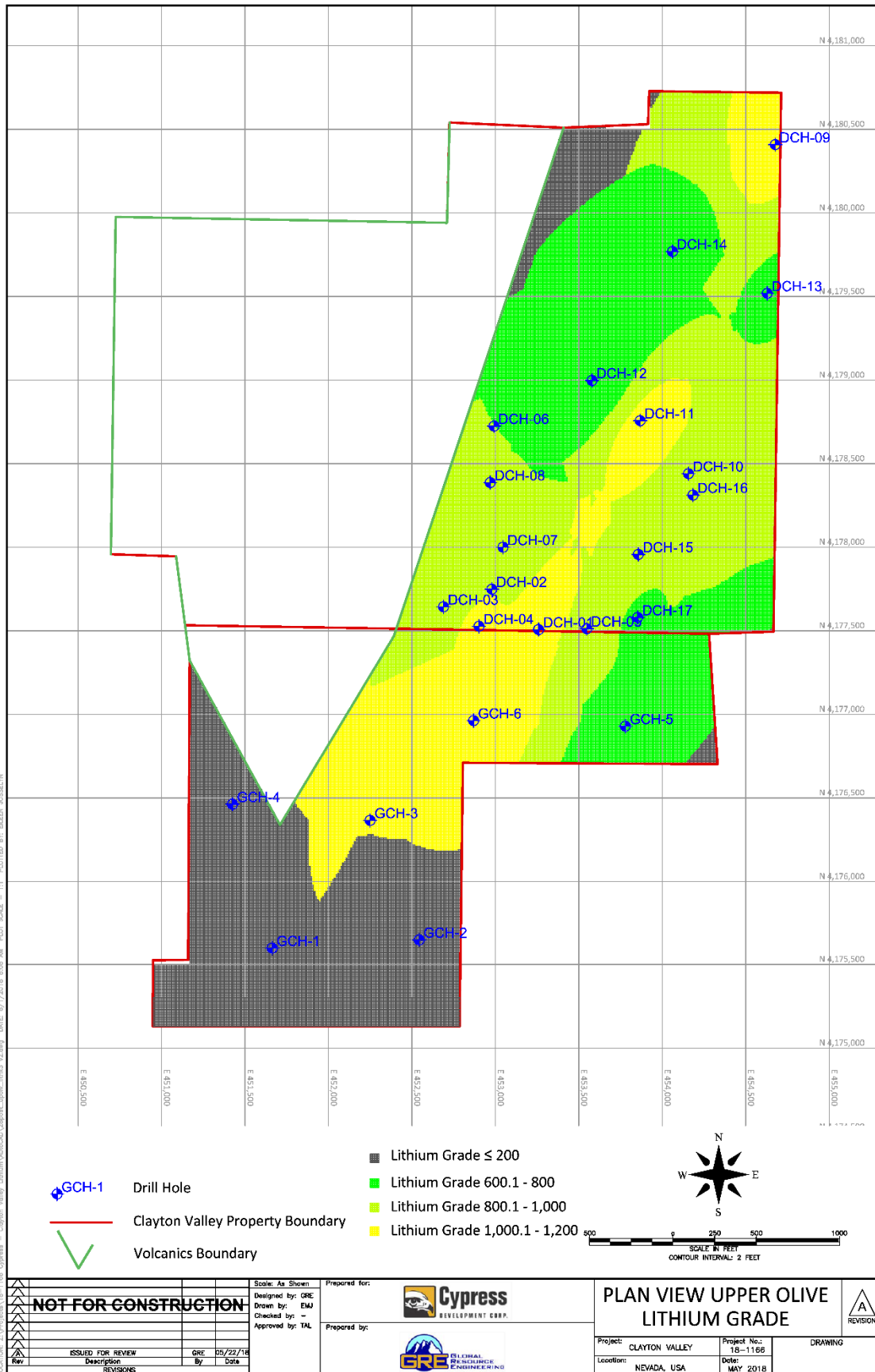
Scale: As Shown  
 Designed by: GRE  
 Drawn by: EMJ  
 Checked by: -  
 Approved by: TAL

Prepared for:  
 Cypress  
 DEVELOPMENT CORP.

Prepared by:  
 GRE  
 GLOBAL RESOURCE ENGINEERING

<b>PLAN VIEW UPPER OLIVE RESOURCE CATEGORIES</b>		REVISION
Project:	CLAYTON VALLEY	
Location:	NEVADA, USA	
Project No.:	18-1166	DRAWING Date: MAY 2018

**Figure 14-13: Plan View of Upper Olive Mudstone Unit with Lithium Grades**



**Figure 14-14: Lithium Average Composite Grade Grid-Contour Map for Main Blue Mudstone Unit**

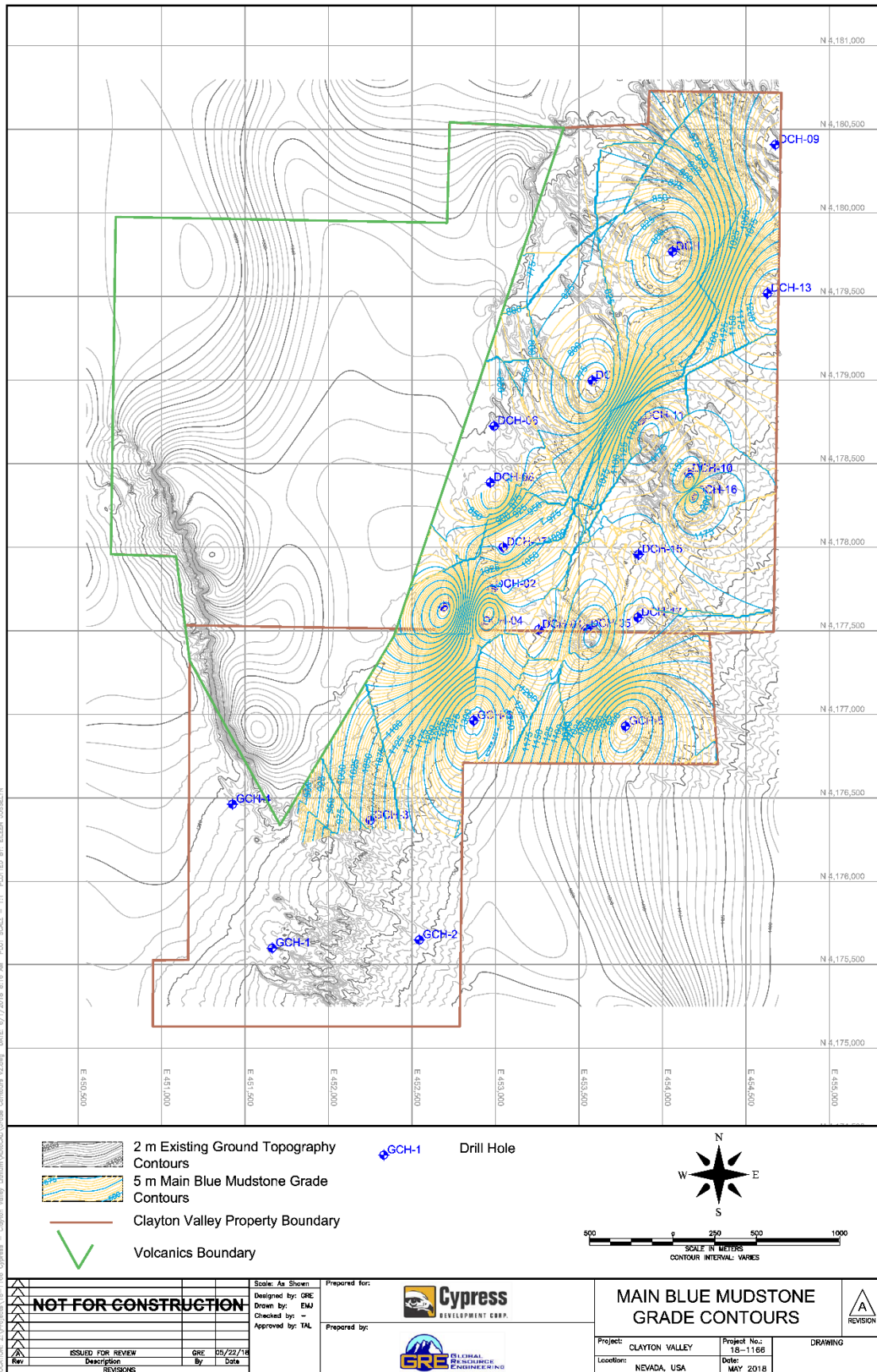
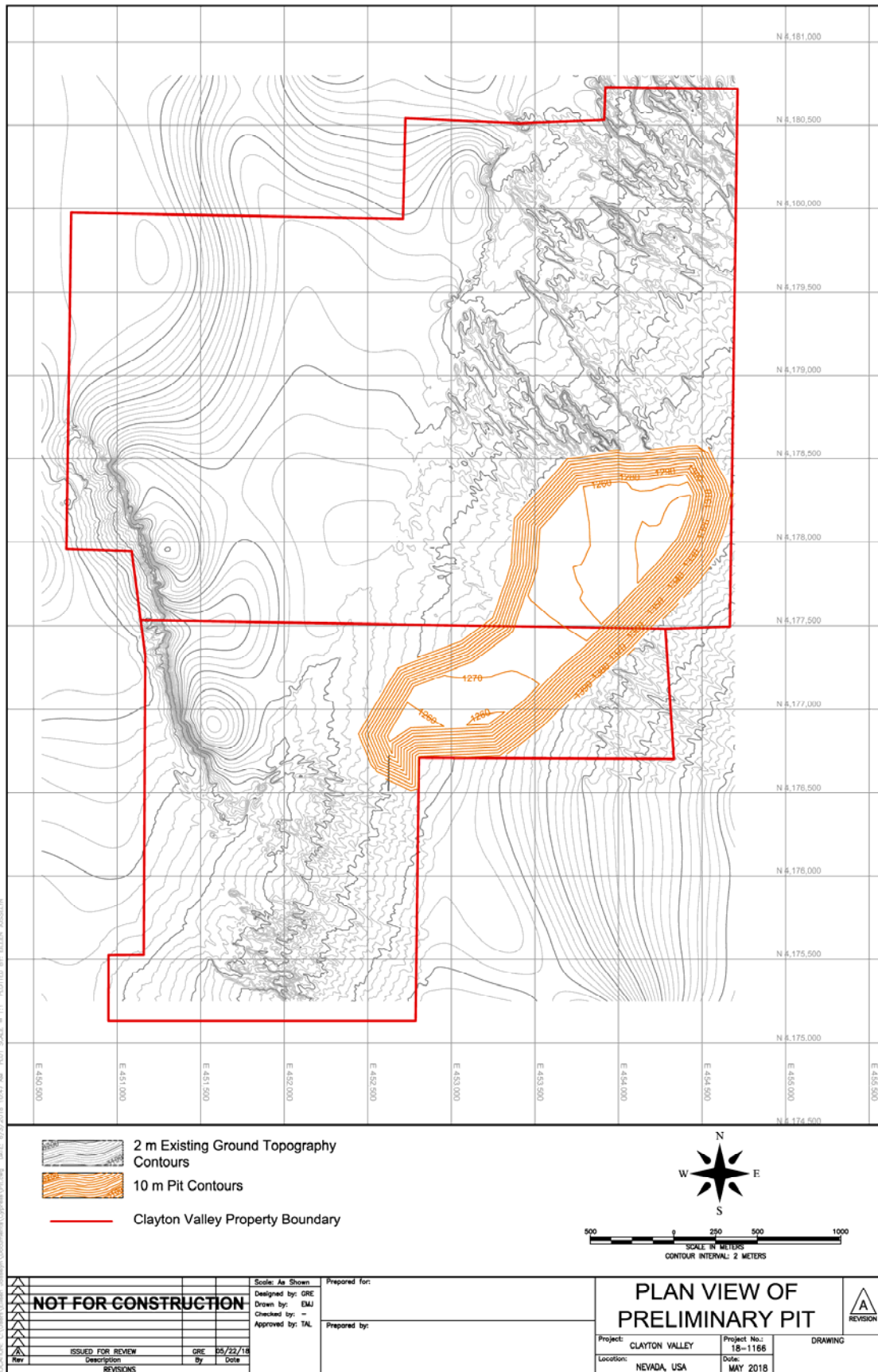




Figure 14-15: Plan View of Preliminary Pit





With 80% recovery, the cost is \$18.75/tonne, and with production of 5.323 kg LiCO<sub>3</sub> per kg of Li contained and a price of \$10,000/tonne LiCO<sub>3</sub>, the calculated cutoff grade is:

$$\frac{\$18.75}{\text{tonne Li}} \times \frac{1 \text{ kg Li}}{5.323 \text{ kg LiCO}_3} \times \frac{\text{tonne LiCO}_3}{\$10,000} = 352 \text{ ppm or } \sim 300 \text{ ppm.}$$

The 300 ppm cutoff is the reported resource and is bolded in the resource tables.

## 14.10 Estimate Results

Resource estimate results at cutoffs of 300, 600, 900, and 1,200 ppm are summarized in Table 14-5. This resource estimation includes data from all 23 drill holes. At a cutoff of 300 ppm, the results of the estimation were 617.5 million kg Indicated lithium (696.6 million tonnes) and 547.6 million kg Inferred lithium (642.8 million tonnes). Within an initial pit area, at a cutoff of 300 ppm, there are 189.1 million kg Indicated lithium (191.4 million tonnes) and 26.6 million kg Inferred lithium (25.4 million tonnes) (Table 14-6). The initial pit area contains resources sufficient to supply a 15,000 tonne per day operation for over 35 years.

Five to 10 additional holes are recommended in the initial pit area for resource conversion and development, with a goal of converting some of the Indicated resource to the Measured category and most of the Inferred resource to the Indicated or Measured categories.

Readers are advised that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability under National Instrument 43-101. This Resource Estimate is preliminary in nature and 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 under National Instrument 43-101.

## 14.11 Estimate Validation

GRE also constructed a 3-dimensional (3-D) block model using the geologic horizons from the 2-D model and 5-meter downhole composites. The 3-D block model used inverse distance squared with a maximum of 10 composites and a minimum of 4 composites using the similar 1500x750x50 meter search parameters as were used for the 2-D model (see Section 14.5.1). Results from the 3-D method are consistent with and verify the 2-D modeling. At a 300 ppm cutoff, the 3-D model had indicated resource of 711 million tonnes with 624 million kg of Lithium, and an inferred resource of 664 million tonnes with 556 million kg of Lithium.

GRE also generated cross-sections and longitudinal sections of the deposit to examine the results of the modeling and confirm that the results agree with the geology. Figure 14-16 shows the locations of the sections. The azimuth of the sections is consistent with the apparent strike of the deposit, which is southwest-northeast.

The sections indicate relatively horizontal depositional layers for each of the units. Dips of layers generally follow topographic dips that are generally very gentle from south-east to the north-west. In section S9, deeper layers such as Lower Olive Mudstone and Hard Bottom Sandstone show a gentle dip to the south-

**Table 14-5: Summary of Clayton Valley Lithium Project Preliminary Resource Estimate (1000s)**

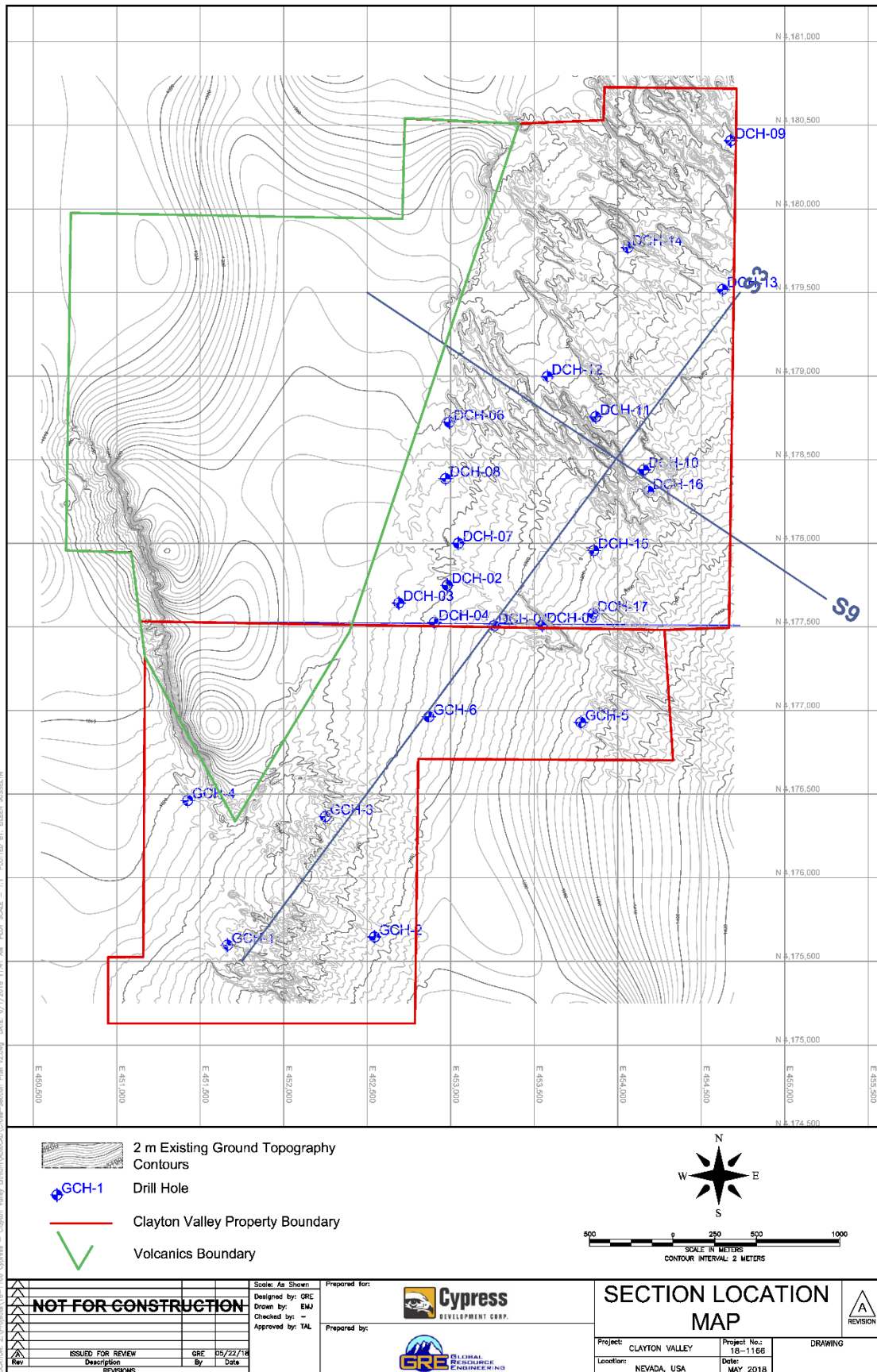
Lithology	Tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm
	Indicated Resource @ 300 ppm Cutoff			Indicated Resource @ 600 ppm Cutoff			Indicated Resource @ 900 ppm Cutoff			Indicated Resource @ 1200 ppm Cutoff		
Upper Tuff	58,700	41,500	707	51,700	37,600	727	2,000	1,900	950	-	-	-
Upper Olive	148,300	133,000	897	148,300	133,000	897	64,700	67,700	1,046	-	-	-
Main Blue	220,500	238,400	1,081	220,500	238,400	1,081	190,300	213,100	1,120	22,500	28,000	1,244
Lower Olive	132,200	112,500	851	132,200	112,500	851	33,700	33,300	988	900	1,100	1,222
Hard Bottom	136,900	92,100	673	102,300	72,700	711	2,000	1,800	900	-	-	-
Sum	696,600	617,500	886	655,000	594,200	907	292,700	317,800	1,086	23,400	29,100	1,244
	Inferred Resource @ 300 ppm Cutoff			Inferred Resource @ 600 ppm Cutoff			Inferred Resource @ 900 ppm Cutoff			Inferred Resource @ 1200 ppm Cutoff		
Upper Tuff	65,300	45,000	689	62,200	43,200	695	500	500	1,000	-	-	-
Upper Olive	112,400	99,300	883	112,400	99,300	883	43,200	44,600	1,032	-	-	-
Main Blue	190,700	196,800	1,032	190,700	196,800	1,032	150,200	163,200	1,087	5,600	6,800	1,214
Lower Olive	149,400	124,400	833	149,400	124,400	833	35,000	33,400	954	-	-	-
Hard Bottom	125,000	82,100	657	80,300	56,800	707	-	-	-	-	-	-
Sum	642,800	547,600	852	595,000	520,500	875	228,900	241,700	1,056	5,600	6,800	1,214

**Table 14-6: Summary of Clayton Valley Lithium Project Resource Estimate in Initial Pit Area (1000s)**

Lithology	Tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm
	Indicated Resource @ 300 ppm Cutoff			Indicated Resource @ 600 ppm Cutoff			Indicated Resource @ 900 ppm Cutoff			Indicated Resource @ 1200 ppm Cutoff		
Upper Tuff	22,600	15,500	686	19,700	13,900	706	-	-	-	-	-	-
Upper Olive	37,400	35,400	947	37,400	35,400	947	17,500	18,400	1,051	-	-	-
Main Blue	88,000	102,900	1,169	88,000	102,900	1,169	88,000	102,900	1,169	16,200	20,300	1,253
Lower Olive	24,500	22,600	922	24,500	22,600	922	14,900	14,300	960	-	-	-
Hard Bottom	18,900	12,700	672	18,900	12,700	672	-	-	-	-	-	-
Sum	191,400	189,100	988	188,500	187,500	995	120,400	135,600	1,126	16,200	20,300	1,253

Lithology	Tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm	tonne	Li-kg	Grade - ppm
	Inferred Resource @ 300 ppm Cutoff			Inferred Resource @ 600 ppm Cutoff			Inferred Resource @ 900 ppm Cutoff			Inferred Resource @ 1200 ppm Cutoff		
Upper Tuff	-	-	-	-	-	-	-	-	-	-	-	-
Upper Olive	<b>7,200</b>	<b>7,100</b>	<b>986</b>	7,200	7,100	986	5,400	5,500	1,019	-	-	-
Main Blue	<b>11,200</b>	<b>13,000</b>	<b>1,161</b>	11,200	13,000	1,161	11,200	13,000	1,161	800	1,000	1,250
Lower Olive	<b>7,000</b>	<b>6,500</b>	<b>929</b>	7,000	6,500	929	6,000	5,600	933	-	-	-
Hard Bottom	-	-	-	-	-	-	-	-	-	-	-	-
Sum	<b>25,400</b>	<b>26,600</b>	<b>1,047</b>	25,400	26,600	1,047	22,600	24,100	1,066	800	1,000	1,250

Figure 14-16: Clayton Valley Lithium Project Section Locations



east that represents a very open syncline form. The obvious upper contact of Lower-Olive Mudstone in these parts make an angular unconformity with younger lithologic units.

Figure 14-17 presents a representative longitudinal section; Figure 14-18 presents a representative cross section.



Figure 14-17: Longitudinal Section S3

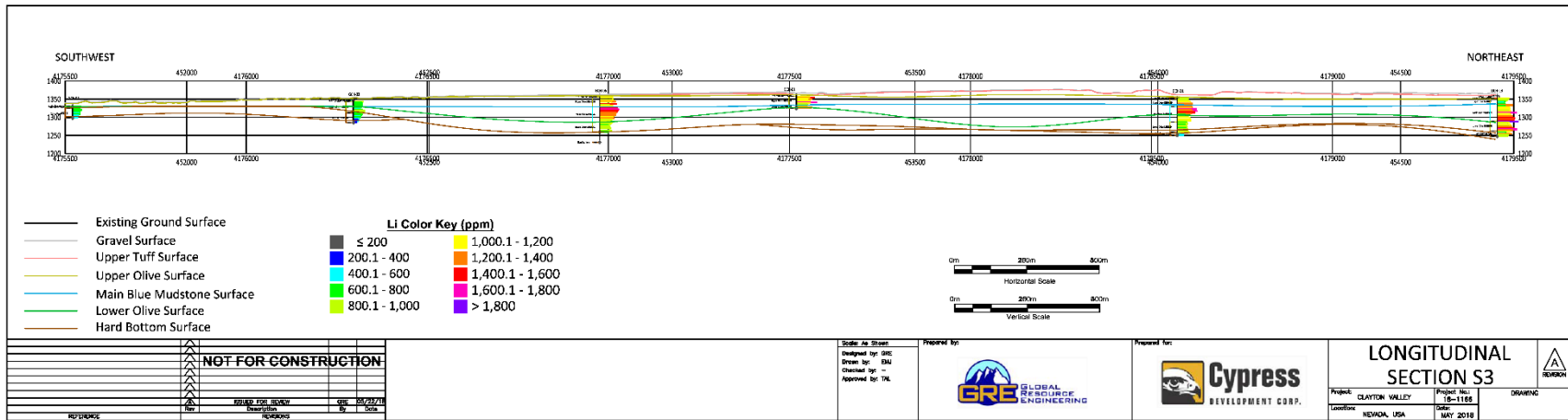
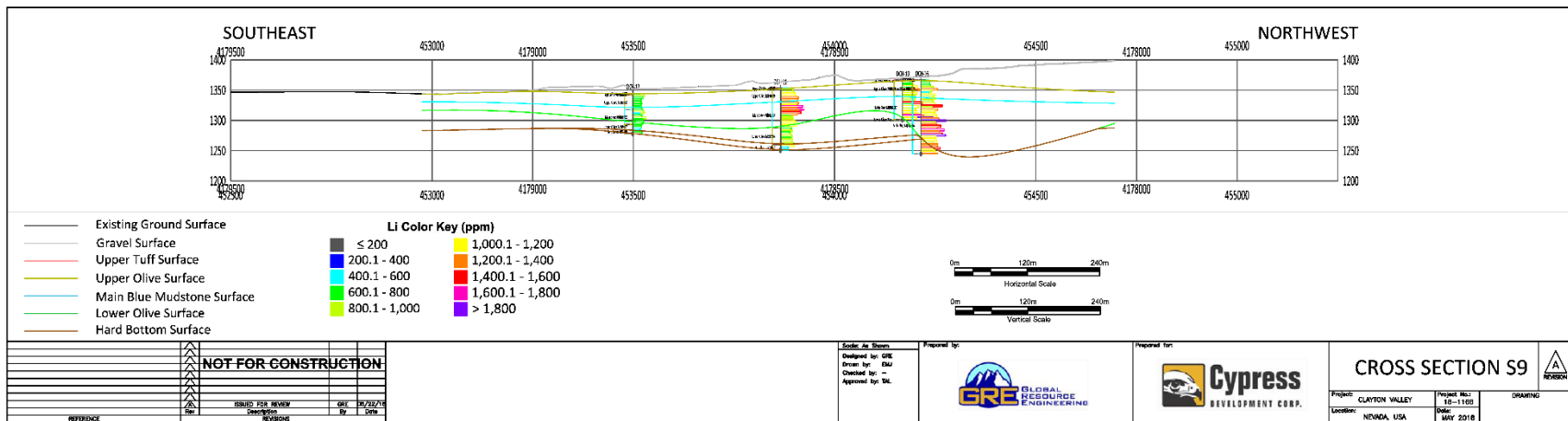


Figure 14-18: Cross Section No. S9



## **15.0 MINERAL RESERVE ESTIMATES**

There are no Mineral Reserves for the project. The project is at a preliminary phase of project development. As defined by NI 43-101, a Prefeasibility Study or Feasibility Study is required to state Mineral Reserves.

## 16.0 MINING METHODS

Several types of surface mining methods and equipment are potentially suitable for the Clayton Valley Lithium Project, including, but not limited to:

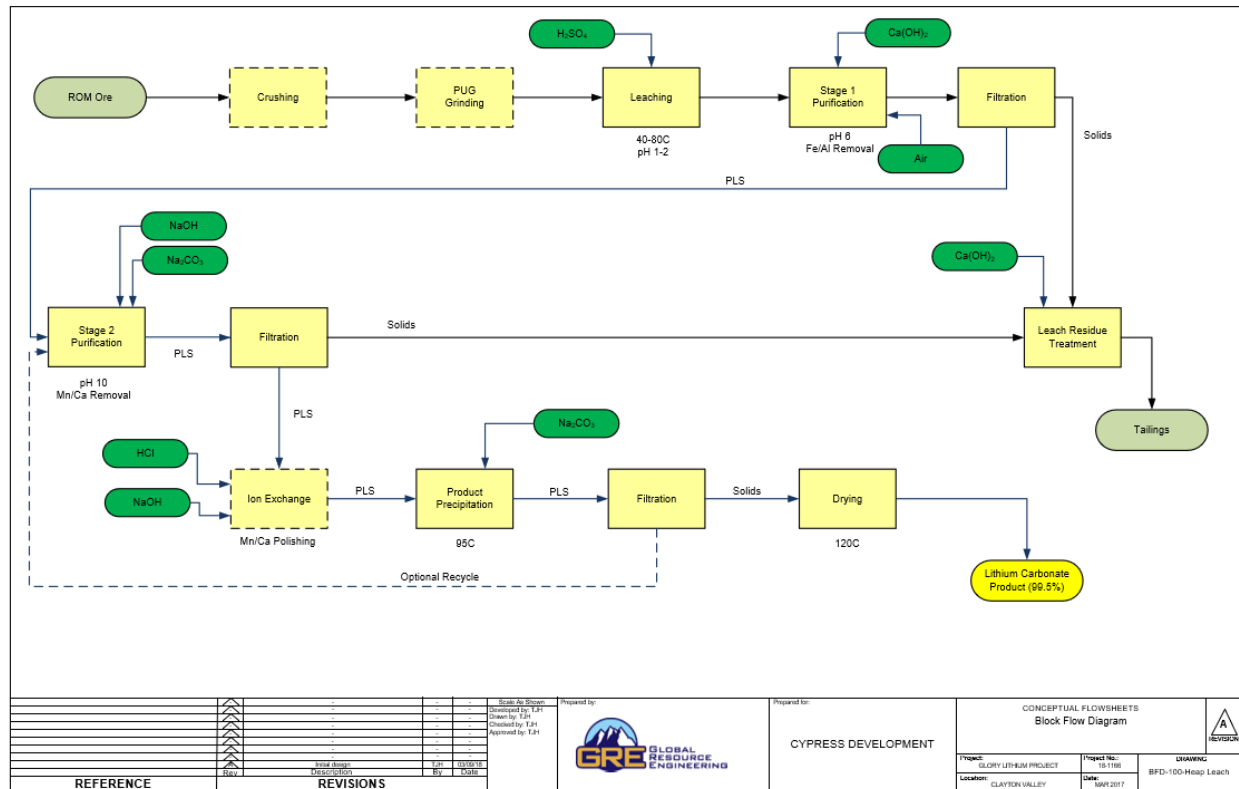
- Dozer and scraper
- Surface planer type continuous miner with conveyor
- Truck and shovel

Drilling and blasting are not expected to be needed.

## 17.0 RECOVERY METHODS

A conceptual block flowsheet is shown in Figure 17-1. At this stage, no selection of the final product form has been made (carbonate or hydroxide). This flowsheet represents a typical commercial lithium production pathway used for brine solution purification to a product of lithium carbonate.

Figure 17-1: Conceptual Block Flowsheet



The material would be mined via conventional surface mining methods and, depending on the equipment used, a crushing circuit may or may not be required. Continuous mining equipment can supply material of a suitable size for direct feed to a pug mill. The material would be fed to a milling circuit to break lumps and disperse the material to an extent suitable for downstream leaching.

The ground product would report to the leaching circuit. The ground material would be pumped to a series of leach tanks. The leach would be conducted with the aid of dilute sulfuric acid and elevated temperature. GRE has assumed acid is shipped to site at a cost of \$80/tonne. Future work should include investigation of producing acid on site, which would reduce the effective cost of sulfuric acid. A typical leach may occur with an acid dosage of 5% sulfuric acid at 50°C. Leach times could range from 2 to 8 hours. Leach conditions can be modified to optimize acid consumption and lithium recovery.

The leach pulp would be pumped to the stage 1 purification circuit, which would consist of series of agitated tanks. Retention time within this purification stage has not been defined, but typical ranges are from 4 to 8 hours. In this circuit, lime would be added to the slurry to increase the pH to near 6 to allow for the precipitation of iron and aluminum. Air may be added to enhance the precipitation efficiency. The slurry would then be pumped to a filtration circuit where solid/liquid separation would occur. This may

include both thickening and filtration. The washed solids would be pumped to a tailings treatment circuit and the pregnant leach solution (PLS) advanced to the second purification stage.

The second purification stage would be utilized to reduce the calcium and manganese concentrations of the PLS through the stage-wise addition of sodium hydroxide and soda ash. The pH would be elevated to approximately 10 to allow precipitation to occur. The resulting slurry would be filtered to remove the precipitated impurities and the PLS advanced to an optional ion exchange column. The precipitated washed solids would be sent to the tailings treatment circuit. The ion exchange system is designed to polish the PLS to remove additional calcium and manganese before final product production. In some cases, an additional bicarbonate circuit can be included whereby gaseous carbon dioxide is introduced to the PLS to remove additional impurities.

The clarified and purified PLS would be pumped to the product precipitation circuit where the temperature would be increased to approximately 95°C, and sodium carbonate is added. At this stage, purified lithium carbonate precipitates from the PLS and is removed by a final stage of filtration. The filtered and washed solids would be sent to a drying circuit prior to being packaged for sale. The target would be to produce a lithium carbonate product of 99.5% purity.

Materials reporting to tailings treatment would be conditioned with further lime addition to ensure all solubilized components are precipitated in a stable form for impoundment within a suitable tailings facility.



## **18.0 PROJECT INFRASTRUCTURE**

Project infrastructure currently consists of the state and county road system.

No power or water are present at the project currently.

## **19.0 MARKET STUDIES AND CONTRACTS**

The lithium business is expanding due to a revolution in transportation technology. Lithium batteries are quickly replacing other forms of vehicle propulsion in southeast Asia and Europe. Cypress has not conducted any market studies.

A market study is needed for Clayton Valley as it has the potential to produce a significant portion of the current world consumption. Due to electric vehicle battery demand and large scale energy storage, worldwide lithium demand is expected to increase dramatically. If Clayton Valley Lithium Project was to produce, it would have a significant impact on world lithium production and prices.

## **20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT**

Cypress has not completed any environmental studies relevant to this Report's content nor has it undertaken any studies with respect to any social or community impacts that would relate to its past exploration at the project or to any further exploration it might carry out pursuant to recommendations contained in this Report. However, Cypress is active in the local community.

Cypress has indicated that it does routinely apply for and receive notice-level permits from the BLM to carryout current activities on the project. Cypress is currently in compliance with all local and federal regulations and requirements relating to its activities on the project.

Under federal regulations and requirements, Cypress will need to carry out appropriate environmental, social, or community impact studies or acquire any related permits, permissions, or agreements to continue work on the project pursuant to recommendations contained in this Report. Cypress anticipates that the detailed study of multiple environmental aspects of the project will be necessary. This is normal for a project as it passes from initial exploration to more advanced stages.

Cypress has conducted all its activities at the project in accordance with environmental standards and compliance requirements and is not aware of any environmental issues related to its activities at the site. Cypress is also committed to conducting its project advancements with best management practices and to maintain an excellent reputation within the local communities the project may have an impact upon.

## **21.0 CAPITAL AND OPERATING COSTS**

GRE has not estimated capital and operating costs.

## **22.0 ECONOMIC ANALYSIS**

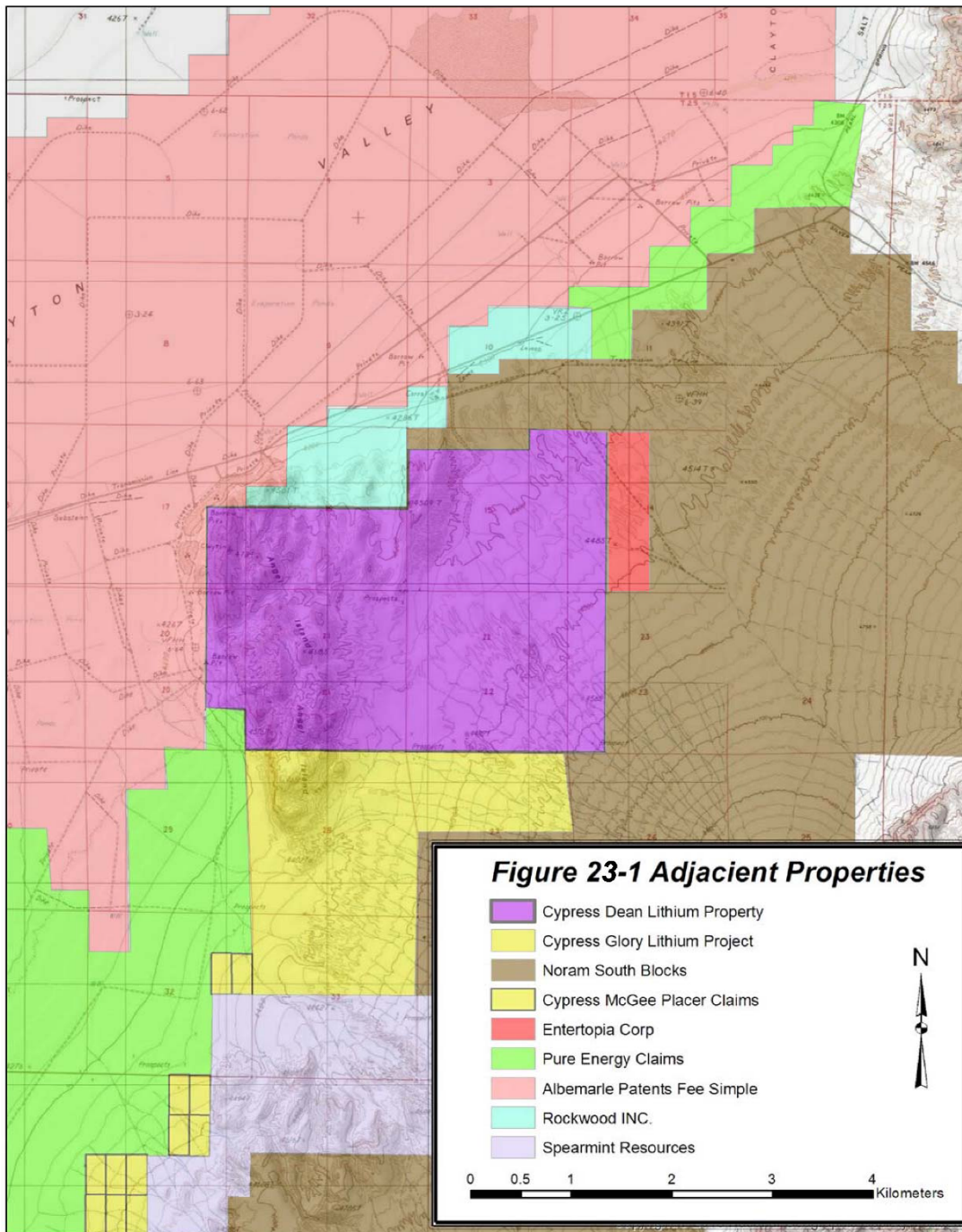
GRE has not performed an economic analysis.



## 23.0 ADJACENT PROPERTIES

The project is surrounded by valid mining claims held by several exploration and mineral production companies. The surrounding claims are 95% placer claims. A small group of valid lode claims exists on the northeast margin of the project. The project also directly adjoins fee simple patent private lands owned by Albemarle Corp., who is processing brines along the west boundary (Figure 23-1).

**Figure 23-1: Adjacent Properties**



The property immediately to the south of the project, owned by Spearmint Resources, recently announced results of a first phase of exploration drilling, with lithium results as high as 1,670 ppm. Three holes were drilled, with lithium results ranging from 396 ppm to 1,670 ppm over 270 feet, averaging 835 ppm Li. Hole 2 had a range of 250 ppm to 1,570 ppm over 220 feet, averaging 642 ppm Li. Hole 3 had a range of 429 ppm to 1,280 ppm Li over 195 feet, averaging 772 ppm Li.

Noram Ventures Inc. has the property to the northeast and reported an inferred resource of 17 million tonnes grading 1,060 ppm lithium in a 43-101 Report dated July 24, 2017.

Pure Energy Minerals has a brine resource to the west and southwest. Effective June 15, 2017, Pure Energy had a Mineral Resource Estimate of 5.24 million cubic meters inferred grading 123 mg/L containing 217,700 tonnes of LCE.

## **24.0 OTHER RELEVANT DATA AND INFORMATION**

The brine lake that historically occupied the Clayton Valley was always hydrologically isolated from the major snow shed of the Sierra Nevada Mountains to the west. This fact becomes especially important during warming cycles that lead to massive fresh water run off events as glacial ice and snow packs melted.

Many dry playa basins exist in Nevada. One that is most similar in many ways to the Clayton Valley is the Salt Wells basin east of Fallon, Nevada. Mining of a variety of salt minerals from Salt Wells has been ongoing since the development of the Comstock Lode in the late 1860s. There is abundant salt at Salt Wells but very little lithium. One reason is certainly that the Salt Wells basin was connected to regional lake Lahontan during times of abundant fresh water runoff. Such a connection would allow the ever-soluble lithium to escape the basin into the large, fresh water lake. Such has not occurred at the Clayton Valley.

Section 27, References, provides a list of documents that were consulted in support of the Resource Estimate. No further data or information is necessary, in the opinion of the authors, to make the Report understandable and not misleading.

## 25.0 INTERPRETATION AND CONCLUSIONS

The project is a large lithium-bearing claystone deposit. The estimated resources in this report are open to depth and laterally. The lithium occurs as discreet mineralization that is readily available for direct acid leaching.

A large higher-grade portion of the deposit is available for mine production over the first several decades of mine life. Many bulk tonnage mining methods appear to be applicable, and drilling and blasting is not anticipated to be required. Dozers, scrapers, surface planers, truck/shovel are all viable methods.

Preliminary metallurgical examinations indicate that the claystone responds well to conventional weak acid leaching with no upstream size reduction required. Initial results indicate that lithium extractions of greater than 80% can be achieved. Expected leach conditions of 2 – 8 hours of leaching with 5% sulfuric acid at temperatures ranging between 50 and 80 °C are anticipated. A conventional downstream lithium recovery circuit should be applicable to produce saleable lithium carbonate or lithium hydroxide.

The project has the potential to be a major supplier of lithium products in the world, and additional work is warranted.

## 26.0 RECOMMENDATIONS

GRE recommends the following activities be conducted for the Cypress Clayton Valley lithium project:

- Infill drilling to upgrade resource categories
- Metallurgical test work to identify and optimize operating conditions for leaching and producing final lithium products
- Market analysis to determine production impacts and product prices, including sulfur pricing and sulfuric acid cost
- Preliminary Economic Assessment, including determination of infrastructure requirements, such as sources of power and water
- Phase I environmental permitting and baseline data collection
- Hydrogeology study
- Geotechnical investigation
- Recommended budget: \$1 to \$2 million

## 27.0 REFERENCES

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## **CERTIFICATE OF QUALIFIED PERSON**

I, Terre A Lane, of 600 Grant St., Suite 975, Denver, Colorado, 80203, the co-author of the report entitled “Resource Estimate, NI43-101 Technical Report, Clayton Valley Lithium Project, Esmeralda County, Nevada, USA” with an effective date of June 5, 2018 (the “Resource Estimate”), DO HEREBY CERTIFY THAT:

1. I am a MMSA Qualified Professional in Ore Reserves and Mining, #01407QP and a Registered member of SME - 4053005.
2. I hold a degree of Bachelor of Science (1982) in Mining Engineering from Michigan Technological University.
3. I have practiced my profession since 1982 in capacities from mining engineer to senior management positions for engineering, mine development, exploration, and mining companies. My relevant experience for the purpose of this Resource Estimate is as the resource estimator with 25 or more years of experience in the area.
4. I have created or overseen the development of mine plans for several hundred open pit and underground projects and operating mines.
5. I have been involved in or managed several hundred studies including scoping studies, prefeasibility studies, and feasibility studies.
6. I have been involved with the mine development, construction, startup, and operation of several mines.
7. I have read the definition of “Qualified Person” set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional organization (as defined in National Instrument 43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of National Instrument 43-101.
8. I have not visited the project.
9. I am responsible for Sections 4, 5, 6, 15, 16, 18, 19, 20, 21, 22, and 23 of the Resource Estimate and have contributed to Sections 1, 2, 3, 14, 24, 25, 26, and 27.
10. I am independent of Cypress Development Corp. as described in section 1.5 by National Instrument 43-101.
11. I have no prior experience with the Clayton Valley Lithium Project.
12. I have read National Instrument 43-101 and Form 43-101F1. The Resource Estimate has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.
13. As of the effective date of the Resource Estimate, to the best of my knowledge, information and belief, the Resource Estimate contains all scientific and technical information that is required to be disclosed to make the Resource Estimate not misleading.

**Terre A. Lane**

*“Terre A. Lane”*

**Mining Engineer**

**Global Resource Engineering, Ltd.**

**Denver, Colorado**

**Date of Signing: June 5, 2018**

## **CERTIFICATE OF QUALIFIED PERSON**

I, Jeffrey Todd Harvey, PhD, of 600 Grant St., Suite 975, Denver, Colorado, 80203, the co-author of the report entitled “Resource Estimate, NI43-101 Technical Report, Clayton Valley Lithium Project, Esmeralda County, Nevada, USA” with an effective date of June 5, 2018 (the “Resource Estimate”), DO HEREBY CERTIFY THAT:

1. I am a Society of Mining Engineers (SME) Registered Member Qualified Professional in Mining/Metallurgy/Mineral Processing, #04144120.
2. I hold a degree of Doctor of Philosophy (PhD) (1994) in Mining and Mineral Process Engineering from Queen’s University at Kingston. As well as an MSc (1990) and BSc (1988) in Mining and Mineral Process Engineering from Queen’s University at Kingston.
3. I have practiced my profession since 1988 in capacities from metallurgical engineer to senior management positions for production, engineering, mill design and construction, research and development, and mining companies. My relevant experience for the purpose of this PEA is as the test work reviewer, process designer, process cost estimator, and economic modeler with 25 or more years of experience in each area.
4. I have taken classes in mineral processing, mill design, cost estimation and mineral economics in university, and have taken several short courses in process development subsequently.
5. I have worked in mineral processing, managed production and worked in process optimization, and I have been involved in or conducted the test work analysis and flowsheet design for many projects at locations in North America, South America, Africa, Australia, India, Russia and Europe for a wide variety of minerals and processes.
6. I have supervised and analyzed test work, developed flowsheets and estimated costs for many projects including International Gold Resources Bibiani Mine, Aur Resources Quebrada Blanca Mine, Mineracao Caraiba S/A, Avocet Mining Taror Mine, Mina Punta del Cobre Pucobre Mine, and others, and have overseen the design and cost estimation of many other similar projects.
7. I have worked or overseen the development or optimization of mineral processing flowsheets for close to one hundred projects and operating mines, including copper flotation and acid heap leach SX/EW processes.
8. I have been involved in or managed many studies including scoping studies, prefeasibility studies, and feasibility studies.
9. I have been involved with the mine development, construction, startup, and operation of several mines.
10. I have read the definition of “Qualified Person” set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional organization (as defined in National Instrument 43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of National Instrument 43-101.
11. I have not visited the project.
12. I am responsible for Sections 13 and 17 of the Resource Estimate and have contributed to Sections 1, 2, 3, 24, 25, 26, and 27.
13. I am independent of Cypress Development Corp. as described in section 1.5 by National Instrument 43-101.
14. I have no prior experience with the Clayton Valley Lithium Project.
15. I have read National Instrument 43-101 and Form 43-101F1. The Resource Estimate has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.

16. As of the effective date of the Resource Estimate, to the best of my knowledge, information and belief, the Resource Estimate contains all scientific and technical information that is required to be disclosed to make the Resource Estimate not misleading.

**Jeffrey Todd Harvey, PhD**

*“Todd Harvey”*

**Director of Process Engineering**

**Global Resource Engineering, Ltd.**

**Denver, Colorado**

**Date of Signing: June 5, 2018**

## **CERTIFICATE OF QUALIFIED PERSON**

I, Jennifer J. Brown, Director of Geology and Exploration for Hard Rock Consulting LLC, of 7114 West Jefferson Avenue, Suite 308, Lakewood, Colorado, 80235, the co-author of the report entitled “Resource Estimate, NI43-101 Technical Report, Clayton Valley Lithium Project, Esmeralda County, Nevada, USA” with an effective date of June 5, 2018 (the “Resource Estimate”), DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of Montana and received a Bachelor of Arts degree in Geology in 1996.
2. I am a Professional Geologist licensed in Wyoming (PG-3719) and Idaho (PGL-1414) and am a Registered Member of the Society for Mining, Metallurgy, and Exploration, Inc. (Member No. 4168244RM).
3. I have worked for I have worked as a geologist for a total of 20 years since graduation from the University of Montana, as an employee of various engineering and consulting firms and the U.S.D.A. Forest Service. I have more than 10 collective years of experience directly related to mining and or economic and saleable minerals exploration and resource development, including geotechnical exploration, geologic analysis and interpretation, resource evaluation, and technical reporting.
4. I have read the definition of “qualified person” set out in National instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
5. I visited the project on February 6 through February 9, 2018.
6. I am responsible for Sections 7, 8, 9, 10, 11, and 12 of the Resource Estimate and have contributed to Sections 1, 2, 3, 24, 25, 26, and 27.
7. I am independent of Cypress Development Corp. as described in section 1.5 by National Instrument 43-101.
8. I have no prior experience with the Clayton Valley Lithium Project.
9. I have read National Instrument 43-101 and Form 43-101F1. The Resource Estimate has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.
10. As of the effective date of the Resource Estimate, to the best of my knowledge, information and belief, the Resource Estimate contains all scientific and technical information that is required to be disclosed to make the Resource Estimate not misleading.

**Jennifer J. Brown**

*“J.J. Brown”*

**Director of Geology & Exploration**

**Hard Rock Consulting LLC**

**Lakewood, Colorado**

**Date of Signing: June 5, 2018**

## **CERTIFICATE OF QUALIFIED PERSON**

I, Hamid Samari, PhD, of 600 Grant St., Suite 975, Denver, Colorado, 80203, the co-author of the report entitled "Resource Estimate, NI43-101 Technical Report, Clayton Valley Lithium Project, Esmeralda County, Nevada, USA" with an effective date of June 5, 2018 (the "Resource Estimate"), DO HEREBY CERTIFY THAT:

1. I am a MMSA Qualified Professional in Geology, #01519QP.
2. I hold a degree of PhD of Science (2000) in geology (Tectonics - structural geology) from Tehran Azad University (Sciences & Research Branch).
3. I have practiced my profession since 1994 in capacities from expert of geology to senior geologist and project manager positions for geology, seismic hazard assessment and mining exploration.
4. I have been involved with many studies including scoping studies, prefeasibility studies, and feasibility studies.
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional organization (as defined in National Instrument 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of National Instrument 43-101.
6. I have not visited the project.
7. I am responsible for parts of Section 14 the Resource Estimate.
8. I am independent of Cypress Development Corp. as described in section 1.5 by National Instrument 43-101.
9. I have no prior experience with the Clayton Valley Lithium Project.
10. I have read National Instrument 43-101 and Form 43-101F1. The Resource Estimate has been prepared in compliance with the National Instrument 43-101 and Form 43-101F1.
11. As of the effective date of the Resource Estimate, to the best of my knowledge, information and belief, the Resource Estimate contains all scientific and technical information that is required to be disclosed to make the Resource Estimate not misleading.

**Hamid Samari, PhD**

*"Hamid Samari"*

**Geologist**

**Global Resource Engineering, Ltd.**

**Denver, Colorado**

**Date of Signing: June 5, 2018**