Part C

Project Description

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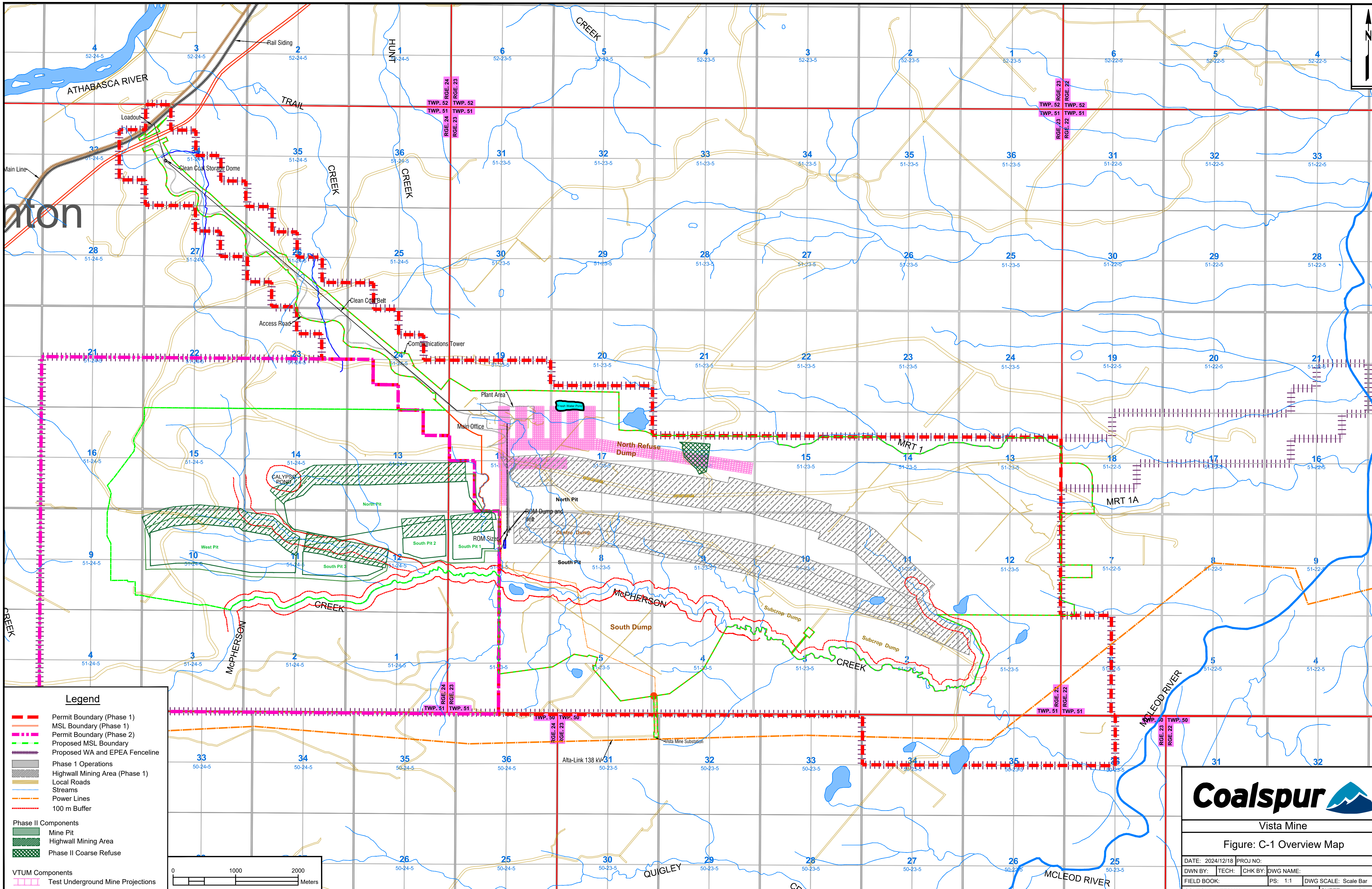
C.1 Project Overview

C.1.1 Project Summary

Coalspur Mines (Operations) Ltd.'s (Coalspur's) Vista Mine Phase I (the Vista Mine) is an operating coal mine with the approval to produce approximately 7.572 million tonnes of clean coal per year until the end of 2027 and 6.972 million tonnes of clean coal per year thereafter. The mine currently consists of an open-pit surface coal mine, a test underground mine, a coal processing plant (CPP), and associated infrastructure. With the current deceleration of mining activities, it's anticipated that the Vista Mine Phase I will undergo a reduction in fleet by 2026. The Vista Mine Phase II Project (Phase II; the Project) is a westward continuation of the existing Phase I surface mine operation. Phase I Production is expected to be reduced to an average of approximately 5.7 million clean tonnes of coal for the next 6 year (2030), which will then be reduced to an average of approximately 0.3 million clean tonnes of coal for the last 2 years prior to mine closure (2032). Phase II is effectively a continuation of the Vista Mine surface mine. It is proposed to commence in 2026, when current mine fleets are expected to start reducing, and it will operate for 12 years, therefore extending the life of the mine and sustain the full workforce for an additional 12 years. Phase II of the Vista Mine will maintain coal production of the overall Mine at an average of approximately 5.5 million clean tonnes of coal between the start of Phase II (2026) to the end of mine life (2037).

C.1.2 Project Location

The Vista Mine Phase II Expansion Project is located in Treaty 6 Territory, south of the Athabasca River in portions of Sections 9-16, Township 51, Range 24 W5M, and portions of Sections 7 and 18, Township 51, Range 23, W5M in Yellowhead County approximately 3.5 km east of Hinton, Alberta. A central latitude and longitude are 53° 24′ 29.07″N Latitude and 117° 23′ 8.97″W Longitude (Figure C-1).



Legend
Permit Boundary (Phase 1)
MSL Boundary (Phase 1)
Permit Boundary (Phase 2)
Proposed MSL Boundary
Proposed WA and EPEA Fenceline
Phase 1 Operations
Highwall Mining Area (Phase 1)
Local Roads
Streams
Power Lines
100 m Buffer
Phase II Components
Mine Pit
Highwall Mining Area
Phase II Coarse Refuse
VTUM Components
Test Underground Mine Projections
0
1000
2000
Meters
Coalspur
Vista Mine
Figure: C-1 Overview Map
DATE: 2024/12/18
PROJ NO:
DWN BY:
TECH:
CHK BY:
DWG NAME:
FIELD BOOK:
PS: 1:1
DWG SCALE: Scale Bar
CONTOUR INTERVAL:
SHEET: 1 OF 1
N
ATHABASCA RIVER
Rail Siding
TRAIL
Loadout
Main Line
Clean Coal Storage Dome
Clean Coal Belt
Access Road
Communications Tower
Plant Area
Main Office
North Refuse Dump
Fresh Water Pond
CALYPSO POND
North Pit
West Pit
South Pit 3
South Pit 2
South Pit 1
ROM Dump and Belt
ROM Sizer
Centre Dump
South Pit
South Dump
Subcrop Dump
McPHERSON
CREEK
HUNT
MRT 1
MRT 1A
MCLEOD RIVER
QUIGLEY
Alta-Link 138 kV
Vista Mine Substation
TWP. 52
TWP. 51
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RGE. 24
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C.1.3 Project Justification and Purpose

There is still a large demand for thermal coal, which supplies over a third of the world's energy supply in 2021 (NRCAN, 2024). The Vista mine produces high calorific value, low sulphur, and moderate to low nitrogen coal and is mined in a responsible manner that supports these demands. Market projections demonstrate that Asian thermal coal imports are expected to grow by more than 270 million tonnes to more than 1 billion tonnes per year by 2030 (Commodity Insights, 2020). There are several fundamental factors driving this increased demand:

- High electricity demand growth across developing Asia, driven by strong economic growth, increasing industrialization, and higher electrification rates;
- High population growth across developing Asia, particularly India and Southeast Asia;
- Significant coal-fired generation capacity commissioned in many countries; and
- In some regions, an inability of domestic coal production to keep pace with demand growth, amplified by an increasing demand for high-quality thermal coal (i.e., high energy, low impurity), which the Vista Mine can provide.

Coalspur's clients in Taiwan, Japan, and South Korea still desire responsibly sourced coal and the Vista Mine, inclusive of Phase II, can provide a reliable source of this coal to help meet the increase in demand over the next 13 years, which is the purpose of developing this project.

With the Phase II development, Coalspur will:

- Continue to provide a source of jobs close to the Town of Hinton;
- Continue to employ skilled employees in full-time, well-paid positions;
- Support education and training initiatives applicable to the Vista Mine;
- Continue to be an active member of the community by supporting local programs and charities;
- Provide opportunities to local, regional, and provincial contractors and retailers, including Indigenous groups, who will provide goods and services to the projects; and
- Provide revenue to municipal, provincial, and federal governments in the form of production royalties, license fees, and taxes.

The Project anticipates annual operations expenditures of $337 million and total sustaining capital expenditures of approximately $158 million. In addition, under certain assumptions, the Project is estimated to pay royalties with a net present value of approximately $83 million and corporate income taxes of approximately $147 million over the operational life of the Project.

The economic activity associated with the Project will stimulate employment with suppliers to the Project and in the general economy as the affected workers spend their income on goods and services, hence creating employment in consumer goods and service sectors. The employment effect of the Project on suppliers is referred to as indirect employment effects and the employment generation effect in the general economy as induced employment effects. An order of magnitude estimate of these indirect and induced employment effects is derived using published multipliers from the Statistics Canada Interprovincial Input-Output model. The direct employment effect of the operations phase includes the regular operations workforce and the ongoing maintenance work force. The total direct operations and maintenance employment effect of the Project is approximately 480 full-time equivalent positions. The total (i.e. direct, indirect, and induced) employment effect on the provincial economy is estimated at roughly 2,800 person years annually. In addition, sustaining capital expenditures associated with the Project will also support an estimated 715 person-years of employment across the provincial economy.

The Project also directly supports the Indigenous communities within the region. Coalspur has entered into Impact Benefit Agreements (IBAs) that support long-term relationships with the communities and continued engagement along with business and employment opportunities. IBA terms provide business opportunities for Indigenous communities-owned companies to bid and win contracts at the Vista Mine. Coalspur and its Indigenous partners hope to develop and demonstrate a process by which employment opportunities can be balanced with traditional land use, lessening the impacts during the active mining phase.

C.1.4 Best Available Technologies and Best Environmental Practices

Coalspur's business success is contingent on responsible resource development, which requires state-of-the-art technology and dedicated stewardship in conjunction with maintaining a competitive export thermal coal operation. Coalspur has gained knowledge in the operation of Phase I and has determined the best methods of mining within this area. The Phase II Project utilizes these learnings to develop the most appropriate methods that are both technically and economically feasible and will continue to evaluate new technologies and research. Coalspur is committed to responsible environmental management and continues to do its part to minimize impacts. Coalspur will continue to develop effective management and operational approaches to comply with regulations.

Coalspur believes that environmental impact mitigation can be achieved with proactive preparation, planning, and continued cooperation with industry regulators and the local community. Coalspur's long-term goals and objectives include:

- Continuous improvement in demonstrated, cost-effective technologies (particularly combustion technologies) during the operational phase;
- Alternative mining techniques that reduce environmental impacts; and
- Mitigation and Sustainability – including technology and path to net-zero carbon emissions by 2050.

C.1.5 History of Mine Ownership

The eastern portion of the current Project property was first approved in the early 1980s and was part of Manalta Coal's McLeod River Coal Project (MRCC). In 1983, the MRCC received a provincial Mine Permit and Coal Processing Approval from the Government of Alberta through the Energy Resources Conservation Board (ERCB), which is now the AER, to produce export thermal coal. Following the regulatory approval process that included the completion of an Environmental Impact Assessment (EIA) and public hearing, Manalta Coal decided not to proceed with the project due to the economic conditions at the time.

In May 2011, the Alberta Government transferred the Mine Permit (C 2011-5) and Coal Processing Plant Approval (C 2011-3) to Coalspur. Coalspur was then directed by the regulatory agencies to conduct a new EIA and update the existing permit to current standards. The comprehensive assessments were completed for the Project from 2010 to 2012 and included noise, air quality, hydrology, surface water quality, aquatic systems (e.g., fisheries, benthic invertebrates), groundwater, soils and terrain, vegetation and wetlands, wildlife, human health, socio-economics, land uses, traditional land uses, and historic resources. Revisions to the plant site location and access corridors included in the existing Mine Permit and Coal Processing Plant Approval were also evaluated in these studies.

It was determined that baseline conditions were similar to those of the surrounding area and was void of unique environmental sites or values. The EIA concluded that the Project would not result in any adverse environmental or social impacts with the implementation of effective mitigation and environmental management systems.

The project was deemed to be in the public interest in August 2014, and EPEA approval (3013145-00-00) was issued. Operations began in 2017. The total approved Mine Permit Boundary for the current mining operations is approximately 5,490 ha in size. The coal is moderately low-rank bituminous, suited for thermal electric generation.

C.1.6 History of Approvals and Permits and Amendments

Several modifications and enhancements have been made to the current Vista Mine operations to further reduce and mitigate environmental impacts since the 2014 Phase I approval. These beneficial adjustments are associated with Amending EPEA Approval No. 301345-00-00 through 14. These modifications have included, but are not limited to, the following:

- Modifications to the Mine and Overburden Disposal Plan;
- Clean coal enclosed storage structure;
- Processing plant (update capacity and annual production numbers as a result of changes to the approved mine plan and to modify the location of infrastructure);
- South Dump (reduce its volume, height, and physical disturbance);
- Pit (reduce the surface pit footprint and refine pit development, addition of the siting of an explosives storage facility, addition of highwall mining);
- Subcrop Dump (reduce its volume, height, and physical disturbance);

- North Dump (reduce its volume, height, and physical disturbance, revise licence boundary, refine the development and reclamation plan);
- Addition of a new Centre Dump;
- Include refined reclamation plans;
- Repurpose the McPherson pit for storage, settling, and dewatering of fine coal refuse;
- Updated Water Management Plan;
- McPherson Tailings Cells;
- Test underground mine; and
- Changes to the dust technology design and air emission control systems (primary and secondary crushers and the clean coal storage dome).

Copies of the Mine's current Permits and Approvals can be found in Appendix 4 – Existing Approvals.

C.1.7 Project Approval and Permit Amendments

Phase II will require a provincial mine license and several amendments to existing provincial approvals. The regulatory jurisdiction and requirements of Phase II are summarized as follows:

- Pursuant to the Alberta Coal Conservation Act, a new mine license is required for the surface mine pit, methodologies, and operations.
- Pursuant to the Alberta Coal Conservation Act, an amendment to Mine Permit C 2011-5I is required for increases in raw coal production, revised mine sequencing, and revisions to the reclamation of the site.
- Pursuant to the Alberta Coal Conservation Act, an amendment to the Coal Processing Plant Approval No. C 2011-3K is required to allow for the additional processing of coal in the CPP. There will be no modifications to the CPP.
- Pursuant to the Alberta Coal Conservation Act, an amendment to Pit Licence C 2014-5H is required to accommodate changes to the surface area, sequencing, and regrade configuration of the already approved mine pit.
- Pursuant to the Alberta Coal Conservation Act, an amendment to Mine License C 2014-7E is required to allow for the additional material that will be deposited to the North Dump. The additional material will not alter the current license boundary of the North Dump as there is sufficient space to accommodate the extra material while staying within the confines of the previously approved boundary.
- Pursuant to the Alberta Coal Conservation Act, an amendment to Mine License C 2014-4B is requested to remove Condition 4), license expiration of January 11, 2029. There are no changes or modifications proposed to the South Dump.

- Pursuant to the Alberta Environmental Protection and Enhancement Act, EPEA Approval 301345-1-00 (as amended) will need to be amended to allow for Phase II and to reflect changes in reclamation plans.
- Pursuant to the Alberta Water Act, a new Water Act Approval is required for a new fenceline boundary to allow for water management, wetland management under the Alberta Wetland Policy, groundwater diversion, and surface water diversion.
- Pursuant to the Alberta Water Act, a new Water Act License will be required for the new fenceline boundary and to generally move water from groundwater to surface water allocation and to increase the total water volumes allocated to the overall Vista Mine Operations.
- Pursuant to the Alberta Public Lands Act, an amendment will be required to Mineral Surface Lease 210425 for the Phase II area.
- Pursuant to the Alberta Public Lands Act, formal dispositions are required for the McLeod River freshwater supply.

On October 2018, a *Historical Resources Act* Approval with Conditions was issued for the Project.

C.1.8 Financial Security

The Vista Mine Phase II will require an update to the estimate of total reclamation consistent with the Mine Financial Security Program. Coalspur will calculate, report, and submit financial security in accordance with the Mine Financial Security Program Standard (GoA, 2024; as amended).

C.2 Existing Phase I Mine Operations and Infrastructure

Construction operations at the Vista Project for the development of Phase I commenced in 2017, including infrastructure such as an access road, processing plant, conveyor infrastructure, primary and secondary sizers, railspur off of CN's mainline, loadout equipment, coarse refuse infrastructure and port infrastructure for loading ocean vessels for export to southeast Asia. The infrastructure and production facilities were designed and constructed as approved, in consideration of the potential for Phase II and with the intent that Phase II production would be accommodated with minimal changes or construction.

C.2.1 Processing Infrastructure

The existing Phase I conveyor infrastructure incudes a primary sizer where coal is dumped from trucks, through to a secondary sizer before continuing to the Run of Mine conveyor belt and deposited into the Raw Coal stockpile. The Raw Coal stockpile includes a tripper to allow multiple products to be stored in different areas of the stockpile based on coal quality. The coal in the raw coal stockpile is used to feed the coal processing plant, with washed coal deposited in a clean coal stockpile and refuse split into two streams: coarse and fine refuse. The coarse refuse is transported by conveyor to the North Dump where it is stored. The fine refuse is pumped into thickeners, where the underflow is pumped to the McPherson Tailings Cells; in the cells, any recoverable water is used as process water for the coal processing plant. From the clean coal stockpile, the washed coal is transported by conveyor belts to the Coal Dome, where it is transported across Highway 16 and into the loadout infrastructure and loaded onto trains. The coal is then transported by rail to a port at the Westshore Terminal where it is stockpiled and shipped by ocean vessels to customers in East Asia. The proposed Phase II operation would be a continuation of the Phase I operation; this will not require any changes to the coal stockpiles, or material handling infrastructure.

C.2.2 Mining Operation

Overburden and waste removal in Phase I is primarily completed with the use of truck/shovel operations, dozer stripping, and cast blasting. The truck/shovel operations will dump material into external waste dumps and backfilling previously mined pits, with priority placed on backfilling mined-out pits to allow for reclamation to commence as soon as practicable. Dozers are used to push waste material from the active pit into previously mined-out pits. Cast blasting is used near the start of each pit and is used to cast waste material into mined-out pits to avoid moving waste material mechanically. The coal is mined using a combination of excavators and wheel loaders loading into trucks. The trucks haul the coal from the active pit to the truck dump, where the coal enters the process stream. Prior to mining activities starting, topsoil is stripped and directly placed within the active reclaimed areas or stockpiled for future reclamation. After the topsoil is removed, the subsoil (suitable overburden) is salvaged as required and either directly placed or stockpiled, usually with a shovel. After the subsoil has been removed, all remaining overburden and interburden are drilled and blasted to allow the rock to be mined. The mining operation also has support equipment such as graders for road maintenance, excavators for highwall cleanup and special projects, and water trucks for dust control. When mining is completed in a final highwall, a highwall miner is used to recover additional coal without increasing the disturbance area of the project. After the completion of highwall mining, the pit is available for backfilling. As the mine progresses, the previously mined pits are used for waste rock storage, allowing for areas of previous mining to be progressively reclaimed.

C.3 Phase II Mining Activities

The Vista Phase II Project has additional coal reserves and resources directly adjacent to the Phase I development to extend the life of the mine and sustain the full workforce for an additional 12 years. As mining progresses to an end within the Phase I area, mine fleets and personnel will transfer to the Phase II area, prolonging the overall life of the Mine. The current operational infrastructure, such as the coal material-handling infrastructure, and the shop and dry facilities, will not require any changes or upgrades. The Project will utilize the existing infrastructure, facilities, and roads previously constructed as part of the Phase I operations. In addition to the current operations, the proposed project will include:

- Open pit surface coal mine;
- Highwall mining;
- Tailings storage cells;
- Site services and utilities facilities;
- Ancillary buildings;
- New haul road;
- One creek crossing;
- Fresh and process water supply systems;
- Power supply;
- Distribution infrastructure; and

- Process control and instrumentation.

Phase II mining operations will commence by opening box cut pits in the McPherson and Val d'Or outcrop using the existing truck/shovel operations. Mining and waste rock sequencing will be integrated to ensure efficient waste rock removal and to maximize the backfilling of mined-out areas. The mining will be sequenced to provide the maximum amount of backfill space within Phase II as reasonably practical. Mining generally advances from the southeast to the northwest, with stripping ratios greatest in the north and smallest in the south. The overall surface mine raw strip ratio is 5:1 bcm/rmt (raw metric tonne); the clean strip ratio is 9.2:1 bcm/cte (clean tonne equivalent). Based on sampling and experience in Phase I, each coal seam has an estimated recovery and subsequent clean tonne equivalence.

When mining commences in Phase II, the waste rock will be removed by large haul trucks to Phase I, where it will be used for capping or backfilling activities. Once sufficient exposed pit floor is available, the waste rock will be used wherever possible to backfill the pit. Upon completion of the initial cuts, a backfill waste disposal plan will be used in order to keep waste haul distances short, minimize the area disturbed by mining, and reduce final reclamation efforts. No external dumps are planned for Phase II. The mining footprint will be offset from McPherson Creek and MCT13 by a minimum distance of 100 m. These offset distances are preliminary and may be adjusted upon further geotechnical evaluations in future studies. Water management infrastructure is planned within the 100 m buffer, however, will reside outside of a 30 m riparian zone for critical habitat.

C.3.1 Phase II Pre-Development

Mine pre-development, such as maintenance, warehouse, fuel, blasting, and dry facilities, have been completed during the construction and operation of Phase I. The mine operations pre-production phase will consist of mine site development, such as timber salvage, topsoil salvage, and initial water management activities.

C.3.1.1 Infrastructure Development

Minimal infrastructure will need to be constructed to allow for the initiation of production from the Phase II mining project. An aerial topographic survey and ground survey to tie the known land boundaries to the mine coordinate system will be performed to ensure that all survey and land data is accurate. Electrical power will come from the existing main transmission lines associated with the Phase I operations.

C.3.1.2 Initial Site Work

Prior to ground disturbance, freshwater diversion ditches will be constructed to intercept surface water upstream of mining and convey the water to streams downstream of mining activities. Mine wastewater collection ditches will be constructed to intercept surface water runoff from disturbed areas and convey the water to a sediment pond system. Design and preliminary construction drawings of the surface water management features can be found in Appendix C1(a) – Water Management Plan.

Tree clearing of mining areas will be completed sufficiently ahead of production to allow for timely topsoil removal and initial haul road or rock dump base construction. Roads required for advancing pits will be established as the mining operation progresses.

Currently, the Phase I operation is using mined-out McPherson pits as tailings cells. Current projections estimate that the planned McPherson Tailings Cells in Phase I will have ~3,300,000m^3 of tailings storage capacity remaining after completion of all Phase I mining operations. This additional storage capacity will allow for tailings generated from Phase II to be stored in the McPherson Tailings Cells. As Phase II is a continuation of the Vista Mine's mining activities, once McPherson Tailings Cells reach their storage capacity, the South Pits within the Phase II area will be utilized for tailings storage. The three South Pits are intended to operate similar to the McPherson pits in Phase I. In addition to the remaining space available in Phase I, the three South pits will provide ~13,900,000 m^3 of tailings storage space, equivalent to ~42,000,000 clean tonnes worth of tailings generation.

The overall mining pit excavation limit and tailings cells have been designed to ensure that the fish-bearing streams remain intact (McPherson Creek and MCT13). All mining pit excavation limits have been developed such that there is a minimum of 100 m offset on either side of McPherson Creek and MCT13, and the riparian zone is left undisturbed.

There is some existing oil and gas and forestry infrastructure located near the proposed development area. Several oil and gas infrastructure projects exist south and west of the proposed mining disturbance boundary. The western extent of the boundary was largely determined not to permanently impact this infrastructure. Coalspur is currently engaging with local disposition holders to update agreements for common lands associated with oil and gas resources. This agreement addresses operational concerns from both parties and remains relevant to the proposed mine expansion. Forestry roads will need to be relocated throughout the life of the project, and discussions are underway with the Forestry Management Unit (FMU) tenure. This is described further in CR #10 – Land Use and Resource Management Assessment and Part E, Section E.11.

C.3.2 Mining Equipment

The mining equipment necessary to meet the production requirements of the Vista Mine's mining plans has been identified and incorporated into the Phase II Project. Based on range diagram analyses and a review of deposit geology, it was determined that the Coalspur reserves targeted for recovery could be effectively mined using the existing combination of shovel/truck, excavator/truck, and dozer push stripping methods.

These mining methods have been utilized in Phase I operations since 2018 and have proven successful. The primary equipment models to be used in the Phase II mining operations will be the same as the equipment in the Phase I mining operation. Selected primary equipment models and estimated fleet sizes for current operations and for the proposed Phase II Project are summarized in Table C-1. Phase II will maintain the current Phase I mining fleet for an additional 12 years (2026 to 2037).

Large mining equipment was selected to facilitate the efficient mining of the Vista property and to allow for the logical transitioning to the desired ultimate production rate. Phase II will add stability to the current mining operations, as current Phase I operations come to an end. Phase II will provide an annual coal production average of 3.5 million clean tonnes per year. This will provide the Mine with an overall average of 5.5 million clean tonnes per year (Phase I and Phase II combined). The overall Vista Mine will have the potential to produce up to a maximum of 8 million tonnes of clean coal during Phase II's first year of production (2026), and a maximum of 6.8 million tonnes of clean coal per year thereafter.

Table C-1 Summary, Timing, and Application of Large Equipment

Equipment Type	Size Class	Duty	Max	2024		2025		2026		2027		2028		2029		2030	
				Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II
Hydraulic Shovel	29 m^3	Waste Removal	3	3	0	3	0	2	1	1	2	1	2	2	1	2	1
Trucks - Rear Dump	207 m^3	Waste Haulage	18	18	0	18	0	11	7	6	12	8	10	10	8	12	6
Hydraulic Excavators	27 m^3	Coal/Parting Removal	6	6	0	6	0	4	2	2	4	3	3	3	3	4	2
Trucks - Rear Dump	174 m^3	Coal/Parting Haulage	10	10	0	10	0	6	4	4	7	5	5	6	4	6	4
Wheel Loader	23 m^3	Waste/Parting Removal	3	3	0	3	0	2	1	1	2	1	2	2	1	2	1
Trucks - Rear Dump	60 m^3	Topsoil Haulage	9	9	0	9	0	5	4	3	6	4	5	5	4	6	3
Large Dozers -Track	634 kw	Waste Removal	9	9	0	9	0	5	4	3	6	4	5	5	4	6	3
Drills - Diesel	270 mm	Waste/Parting Removal	3	3	0	3	0	2	1	1	2	1	2	2	1	2	1
Graders	227 kW	Road Maintenance	4	4	0	4	0	2	2	1	3	2	2	2	2	3	1

Equipment Type	Size Class	Duty	Max	2031		2032		2033		2034		2035		2036		2037	
				Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II	Phase I	Phase II
Hydraulic Shovel	29 m^3	Waste Removal	3	1	2	1	2	1	2	1	2	0	3	0	3	0	3
Trucks - Rear Dump	207 m^3	Waste Haulage	18	3	15	4	14	4	14	8	10	3	15	0	18	0	18
Hydraulic Excavators	27 m^3	Coal/Parting Removal	6	1	5	1	5	1	5	3	3	1	5	0	6	0	6
Trucks - Rear Dump	174 m^3	Coal/Parting Haulage	10	2	8	2	8	2	8	5	6	1	9	0	10	0	10
Wheel Loader	23 m^3	Waste/Parting Removal	3	1	2	1	2	1	2	1	2	0	3	0	3	0	3
Trucks - Rear Dump	60 m^3	Topsoil Haulage	9	2	7	2	7	2	7	4	5	1	8	0	9	0	9
Large Dozers -Track	634 kw	Waste Removal	10	2	7	2	7	2	7	4	5	1	8	0	9	0	9
Drills - Diesel	270 mm	Waste/Parting Removal	3	1	2	1	2	1	2	1	2	0	3	0	3	0	3
Graders	227 kW	Road Maintenance	4	1	3	1	3	1	3	2	2	1	3	0	4	0	4

C.3.2.1 Truck/Shovel

Hydraulic shovels are assigned to handle the majority of the waste removal. The shovels are teamed with haul trucks. To provide needed flexibility and to more effectively allow for the removal of thinner partings, hydraulic excavators and wheel loaders are also scheduled to remove lesser amounts of waste material. Based on the results of the range diagram analysis, a truck shovel dozer-push combination will also be utilized for mining the McLeod, McPherson, and Val d'Or seam waste. Shovel benches will range up to 15 m. This bench height is well within the operating limits for this size of machine.

C.3.2.2 Large Support and Coal Handling Equipment

Given the production requirements involved, dozer push stripping is scheduled to be accomplished by CAT D11T bulldozers. The downhill and level dozer pushes are very cost-effective even after accounting for the re-handle cost. The alternative to dozer push stripping would be stripping all the waste material utilizing a higher-cost truck-shovel operation. Large, tracked dozers are also used to provide support for the shovels, perform spoil grading, and the ripping of thin partings, while additional smaller dozers were used for pit support and assorted topsoil and reclamation work.

Removal of parting waste material found in all three seam groups was primarily accomplished with a combination of wheel loaders and hydraulic excavators paired with haul trucks. Smaller backhoes are matched with articulated haul trucks for handling unconsolidated topsoil for direct placement in reclamation areas or into the topsoil stockpile for reclamation activities later in the mine life.

CAT MD6250 drills capable of drilling 270-millimeter (mm) diameter holes are well suited for waste (overburden and interburden) drilling requirements. These drills will be utilized for all drilling operations on the Project, ranging from 30 m deep cast blasts to 1.5 m deep parting shots.

Coal is primarily excavated utilizing hydraulic excavators and/or front-end loaders loading into 100t to 200t haul trucks.

Based on engineering experience with the current Phase I operations and other mining operations, the types and sizes of other support equipment (e.g., graders, water trucks, cranes, utility backhoes, etc.) and service vehicles (fuel/lube trucks, mechanic's trucks, service trucks, etc.) are selected as deemed necessary to adequately support mining operations.

C.3.3 Description of Mining

The proposed pits will vary in size. The Phase II surface disturbance area is approximately 5 km long and 1.5 km wide. The maximum depth below topography is approximately 150 m and typically occurs in the northeast corner of each pit. The description of the annual progression of mining activities is provided in Table C-2. Its associated annual maps for the mining pits are shown on Figures C-2 through C-14.

The timing of mine development, as detailed in this Section, assumes a start of mining and pre-development activities in 2026. The primary potential schedule impact will be the continued development pressures on the Phase I mine and coal availability. As the application review process occurs, Coalspur will coordinate with the AER to ensure communication on approval amendment requirements to maintain the timely release of coal from Phase I.

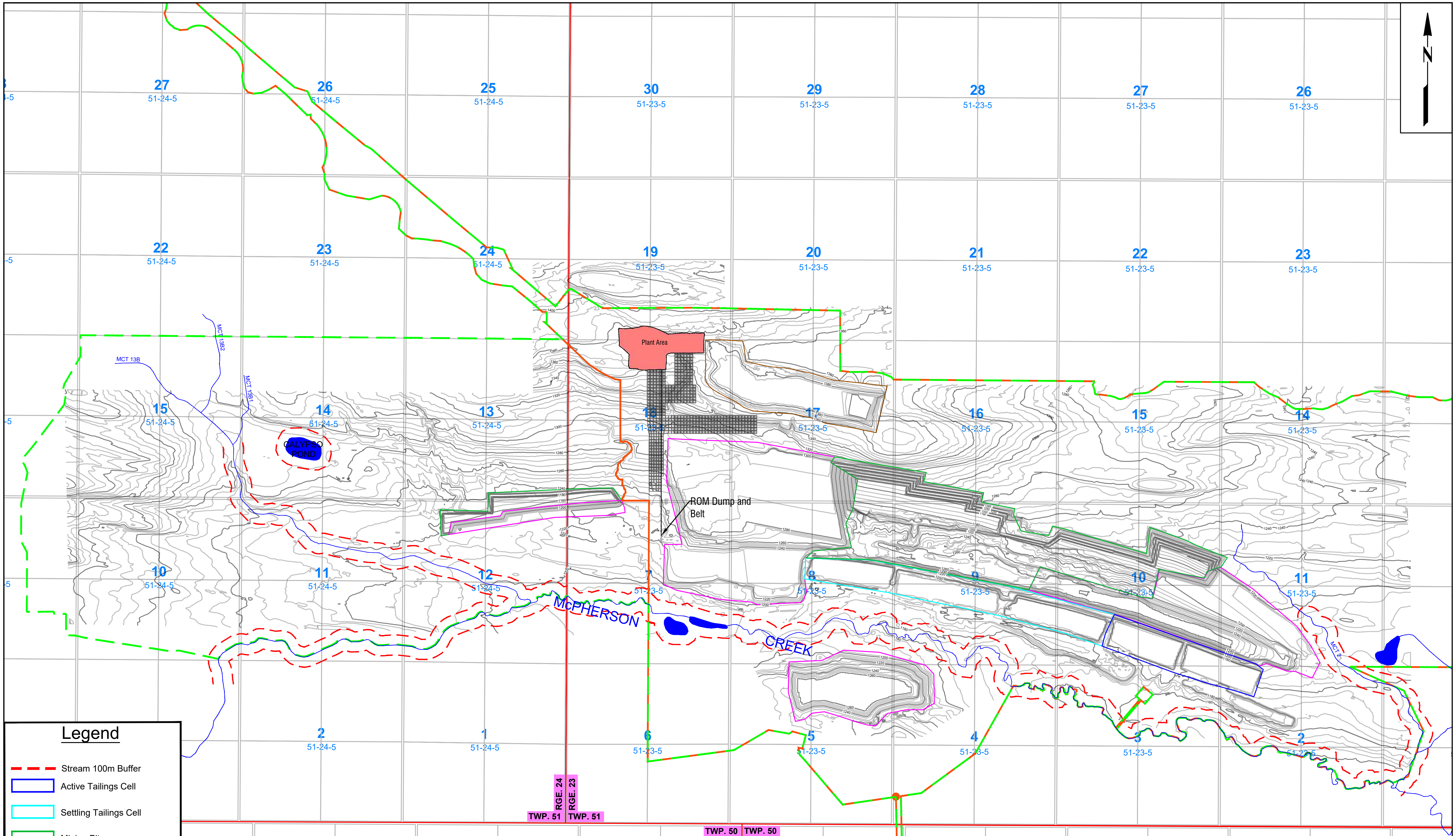
Prior to mining commencing, topsoil will be directly placed within the active reclaimed areas if available or salvaged and stockpiled for future reclamation. Mining will commence on the east side of Phase II, starting with the South-East of the North pit. Mining will generally progress north and west for the North, South, and West pits. The South pits will be utilized for tailings storage cells after mining, similar to the McPherson Pits in Phase I. The North and West pits will be available for backfilling as soon as mining has been completed. During the initial stages of mining in Phase II, there will not be sufficient room in Phase II backfill for all the waste mined; this excess material will be hauled to Phase I. Throughout 2026 and 2027, mining of the North pit will occur east of MCT13. A clear span watercourse crossing will be constructed prior to 2028 to cross MCT13 and access the West pit. At the end of the Phase II mine life, the West pit will be developed as an end-pit lake.

Table C-2 Annual Description of Mining Activities

Year	Works/Mining Activity	Associated Figure
1 (2026)	• Construct settling ponds adjacent to McPherson Creek south of the mining area with related ditching. • Construct clean water bypass diversion ditching north of mine area. • Establish flow augmentation sites. • Begin mining the North Pits in Phase II. • Continue mining the Val D'Or Pits in Phase I. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings are deposited in McPherson Tailings Cells 6 and 7. • McPherson Tailings Cell 2 is capped. • Highwall mining is conducted in the Val D'Or Pits and McPherson Pit 7.	Figure C-2
2 (2027)	• Continue mining North Pits in Phase II and the Val D'Or Pits in Phase I. • Start and complete Mining in McPherson Pit 8. • Backfilling is conducted in the Phase I and Phase II areas where it is available. • Tailings are deposited in McPherson Tailings Cells 7 and 8. • Highwall mining is conducted in the Val D'Or Pits and McPherson Pit 8. • Maintain and construct clean water bypass diversion ditching as needed.	Figure C-3
3 (2028)	• Continue mining North Pits and start West Pits in Phase II and the Val D'Or Pits in Phase I. Start mining in South Pit 1. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings are deposited in McPherson Tailings Cell 8 and capping is complete in McPherson Tailings Cell 3. • There is no highwall mining in 2028. • Maintain and construct clean water bypass diversion ditching as needed.	Figure C-4

Year	Works/Mining Activity	Associated Figure
4 (2029)	• Continue mining North Pits and West Pits in Phase II and the Val D'Or Pits in Phase I. Finish mining in South Pit 1. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings are deposited in McPherson Tailings Cell 8 and South Tailings Cell 1 consecutively and capping is complete in McPherson Tailings Cell 4. • Highwall mining is conducted in the Val D'Or pits and South Pit 1. • Maintain and construct clean water bypass diversion ditching as needed.	Figure C-5
5 (2030)	• Continue mining North Pits and West Pits in Phase II and the Val D'Or Pits in Phase I. Start and Finish mining in McPherson Pit 9. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings are deposited in South Tailings Cell 1 and capping is complete in McPherson Tailings Cell 5. • Highwall mining is conducted in the Val D'Or pits and McPherson Pit 9. • Construct settling ponds south of South Pit 3 with related ditching. • Maintain and construct clean water bypass diversion ditching as needed.	Figure C-6
6 (2031)	• Continue mining North Pits and West Pits in Phase II and the Val D'Or Pits in Phase I. Start and Finish mining in South Pit 2. • Backfilling is conducted in Phase I and Phase I areas where it is available. • Tailings are deposited in South Tailings Cell 1 and water in McPherson Tailings Cell 9. Capping is complete in McPherson Tailings Cell 6. • Highwall mining is conducted in the West Pits and South Pit 2. • Construct settling ponds south of West with related ditching. • Maintain and construct clean water bypass diversion ditching as needed.	Figure C-7
7 (2032)	• Continue mining North Pits and West Pits in Phase II and the Val D'Or Pits in Phase I. Start and Finish mining in South Pit 3. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings is deposited in South Tailings Cell 1 and water in McPherson Tailings Cell 9. Capping is complete in McPherson Tailings Cell 7. • Highwall mining is conducted in the Val D'Or, North Pit and South Pit 3. • Maintain and construct clean water bypass diversion ditching as needed.	Figure C-8

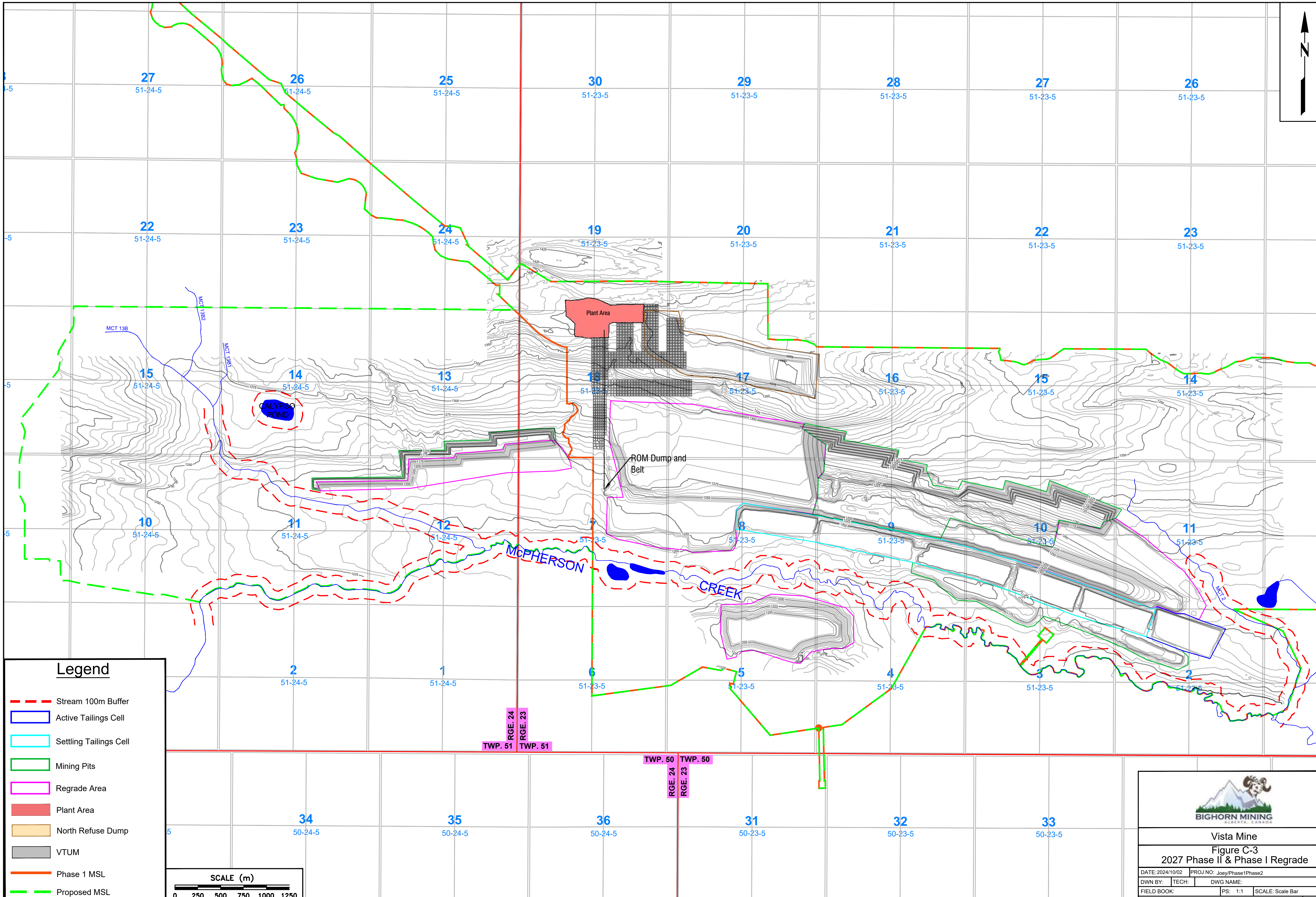
Year	Works/Mining Activity	Associated Figure
8 (2033)	• Continue mining North Pits in Phase II and the Val D'Or Pits in Phase I. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings is deposited in South Tailings Cell 1 and McPherson Tailings Cell 9 and water in South Tailings Cell 2. Capping is complete in McPherson Tailings Cell 8. • Highwall mining is conducted in the North Pit and South Pit 3.	Figure C-9
9 (2034)	• Continue mining North Pits in Phase II and the Val D'Or Pits in Phase I. • Backfilling is conducted in the Phase I and Phase II areas where it is available. • Tailings is deposited in McPherson Tailings Cell 9 and water in South Tailings Cell 2. Capping is complete in South Tailings Cell 1. • Highwall mining is conducted in the Val D'Or Pits.	Figure C-10
10 (2035)	• Continue mining North Pits in Phase II and complete mining in the Val D'Or Pits in Phase I. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings is deposited in McPherson Tailings Cell 9 and water in South Tailings Cell 2. • Highwall mining is conducted in the Val D'Or Pits and the North Pits.	Figure C-11
11 (2036)	• Continue mining West Pits and complete mining in the North Pits in Phase II. • Backfilling is conducted in Phase I and Phase II areas where it is available. • Tailings are deposited in McPherson Tailings Cell 9 and South Tailings Cell 2 consecutively. Residual tailings water in McPherson Tailings Cell 9 is recycled back to the CPP where it's used for processing. Processed water is then cycled to the sequential tailings cell, South Tailings Cell 2. Capping is complete in McPherson Tailings Cell 9. • Highwall mining is conducted in the North Pits and West Pits.	Figure C-12
12 (2037)	• Complete mining in the West Pits in Phase II. • Backfilling is conducted in the Phase 2 areas where it is available. • Tailings are deposited in South Tailings Cell 2. • Highwall mining is conducted in the West Pits.	Figure C-13
13 (2038)	• Complete regrade of the West Pit and South Pit 3. • Establish final mine site drainage plan including outlet for end pit lake (West Pit). • Settling, capping, and backfilling of South Tailings Cell 2.	Figure C-14



Vista Mine

Figure C-2
2026 Phase II & Phase I Regrade

DATE: 2024/10/02	PROJ NO: Joey/Phase1Phase2	
DWN BY:	TECH:	DWG NAME:
FIELD BOOK:	PS: 1:1	SCALE: Scale Bar
CONTOUR INTERVAL: 5 m	SHEET:	1 OF 1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MCT 13B
MCT 13B2
MCT 13B1
Plant Area
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51-23-5
CALYPSO POND
ROM Dump and Belt
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McPHERSON
CREEK
MCT 2
2
51-24-5
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RGE. 24
RGE. 23
TWP. 51
TWP. 51
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RGE. 24
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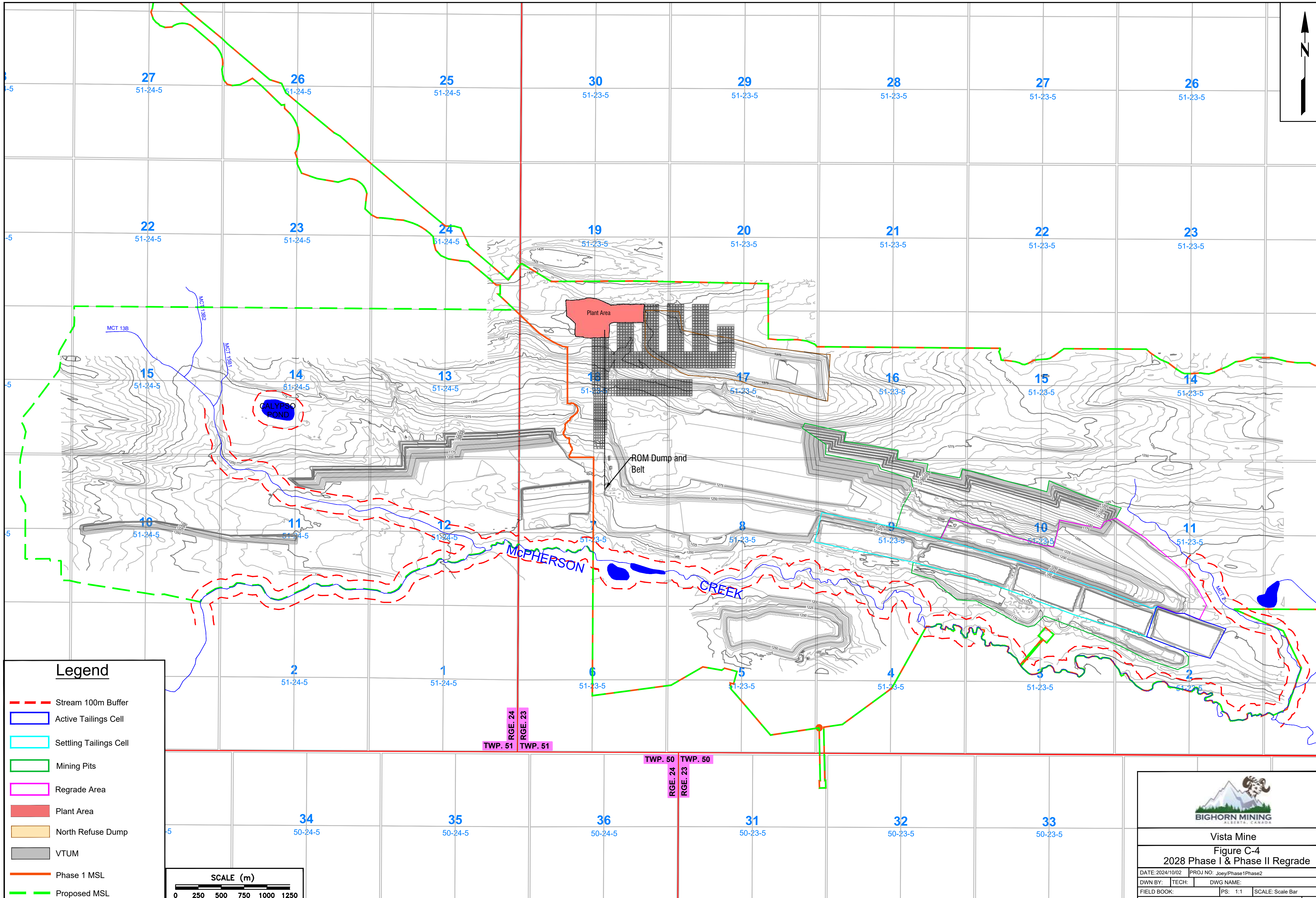
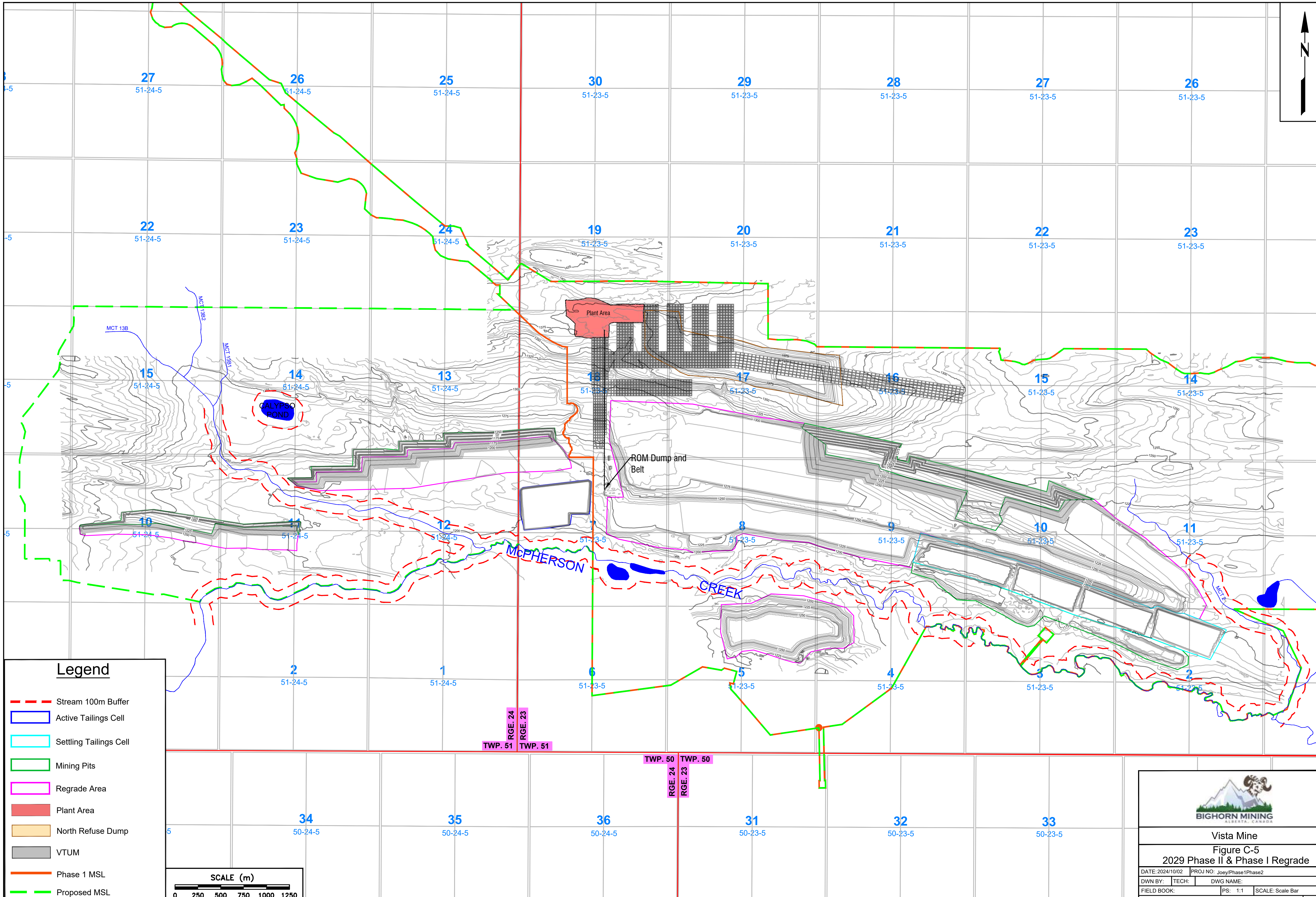
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
VTUM
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-3
2027 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: N/A
SHEET: 1 OF 1



Plant Area
ROM Dump and Belt
McPHERSON CREEK
CALYPSO POND
MCT 13B
MCT 13B2
MCT 13B1
MCT 2
TWP. 51
RGE. 24
RGE. 23
TWP. 50
N
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
VTUM
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
Vista Mine
Figure C-4
2028 Phase I & Phase II Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



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MCT 13B
MCT 13B2
MCT 13B1
Plant Area
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CALYPSO POND
ROM Dump and Belt
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McPHERSON
CREEK
MCT 2
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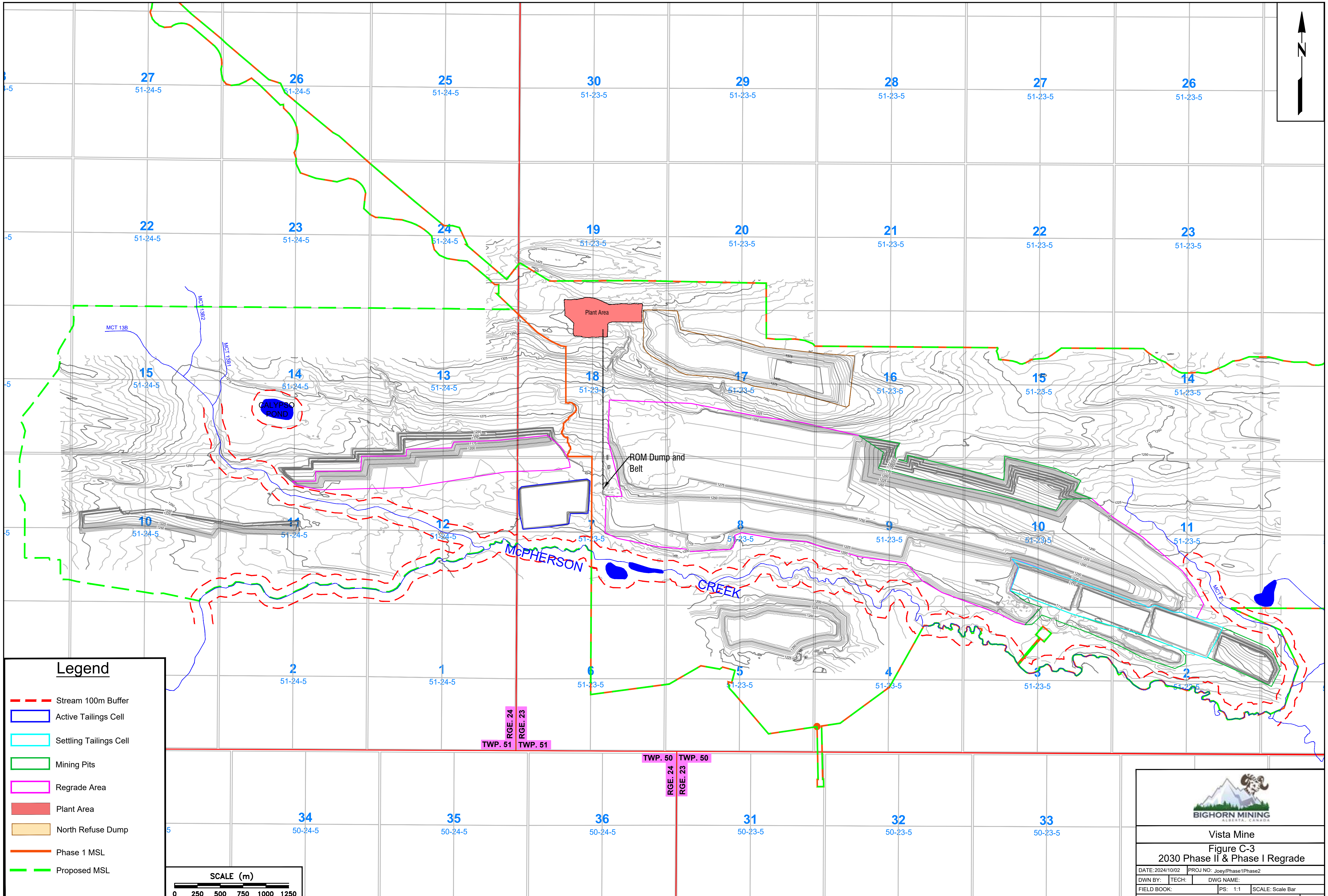
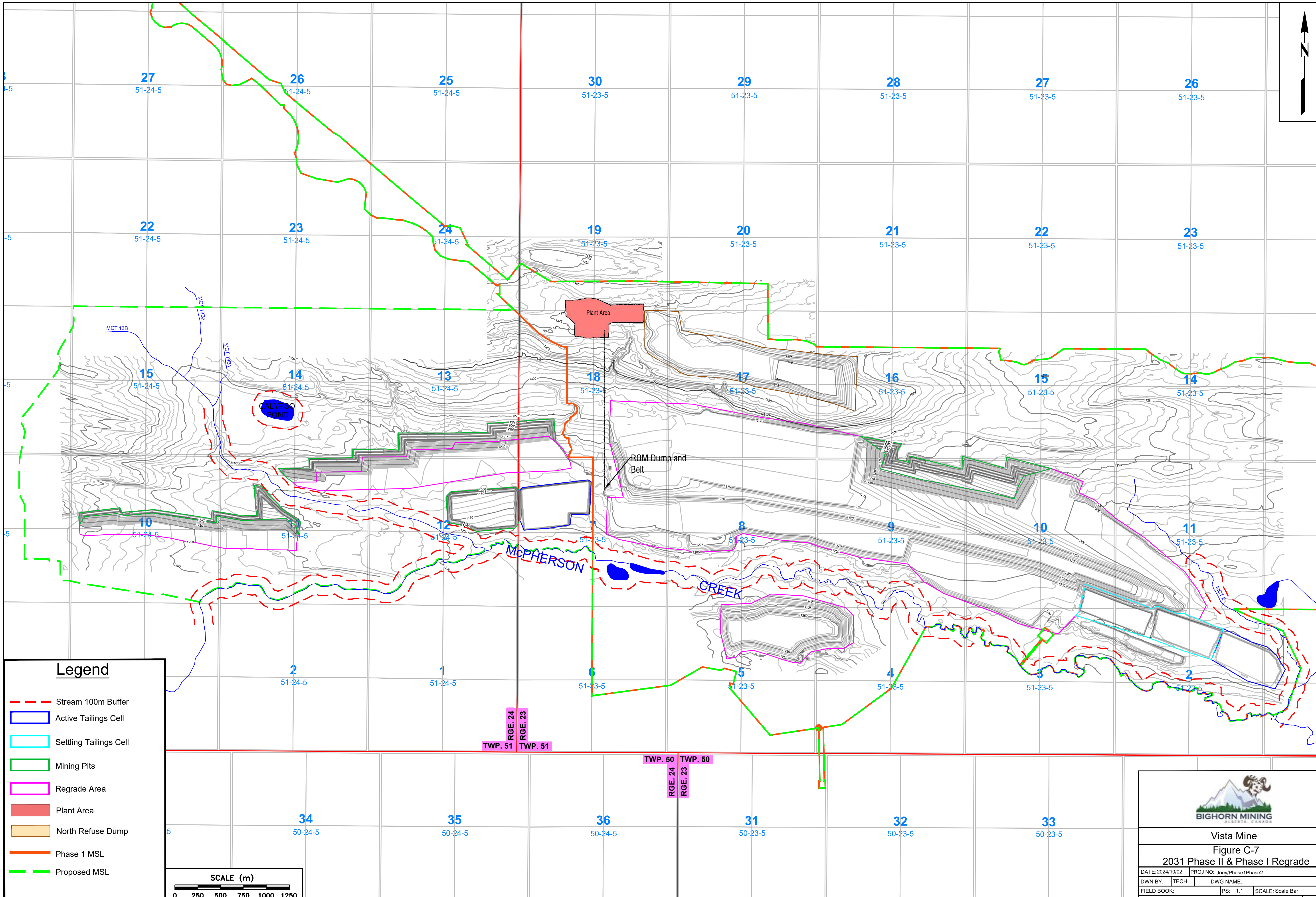
50-23-5
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
VTUM
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-5
2029 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1


Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
Plant Area
ROM Dump and Belt
CALYPSO POND
McPHERSON CREEK
RGE. 24
RGE. 23
TWP. 51
TWP. 50
N
BIGHORN MINING
Vista Mine
Figure C-3
2030 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



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Plant Area
ROM Dump and Belt
McPHERSON CREEK
CALYPSO POND
MCT 13B
MCT 13B2
MCT 13B1
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34 50-24-5
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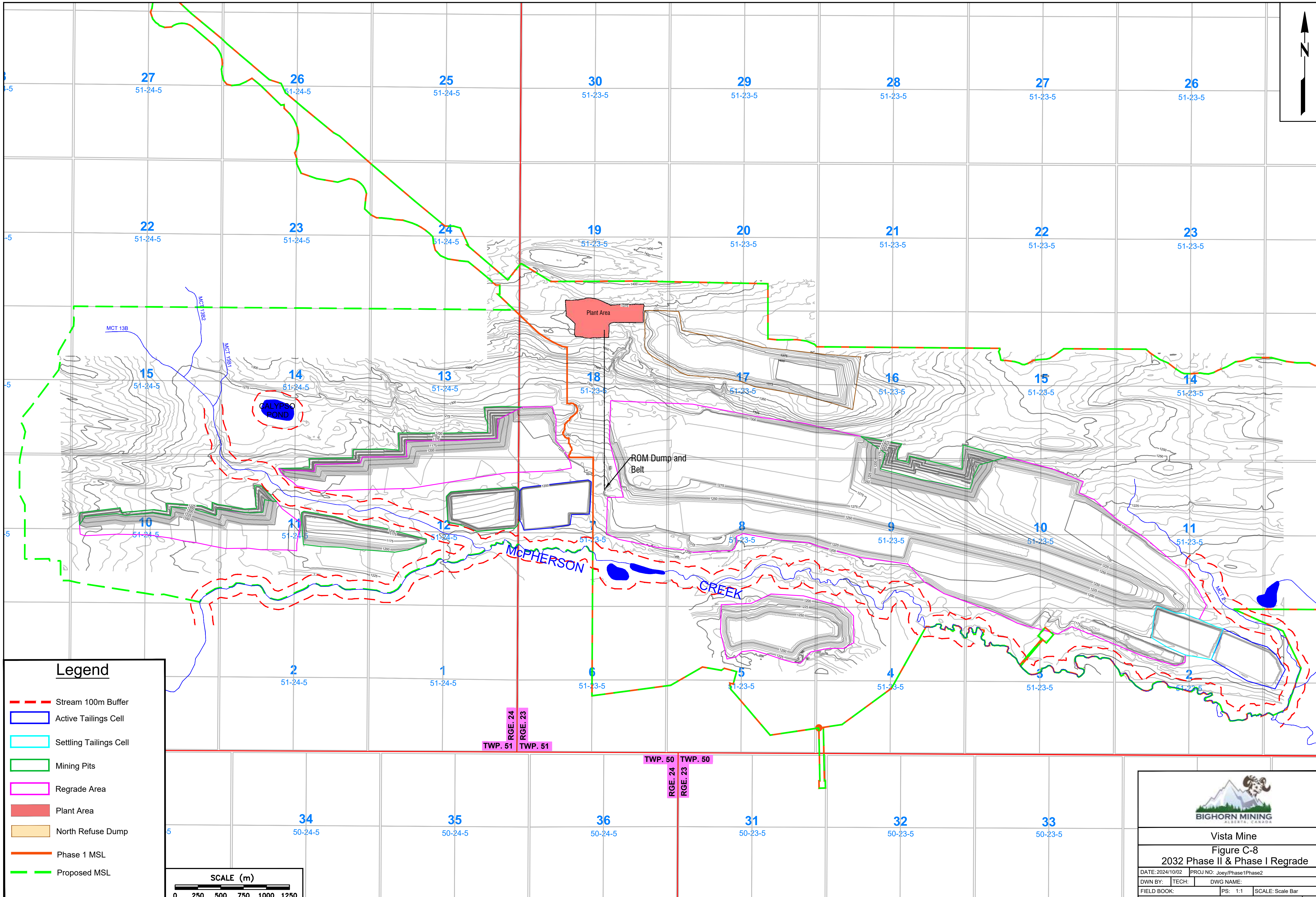
RGE. 24
RGE. 23
TWP. 51
TWP. 51
TWP. 50
TWP. 50
RGE. 24
RGE. 23
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-7
2031 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
Plant Area
ROM Dump and Belt
CALYPSO POND
McPHERSON
CREEK
TWP. 51
RGE. 24
RGE. 23
TWP. 50
27 51-24-5
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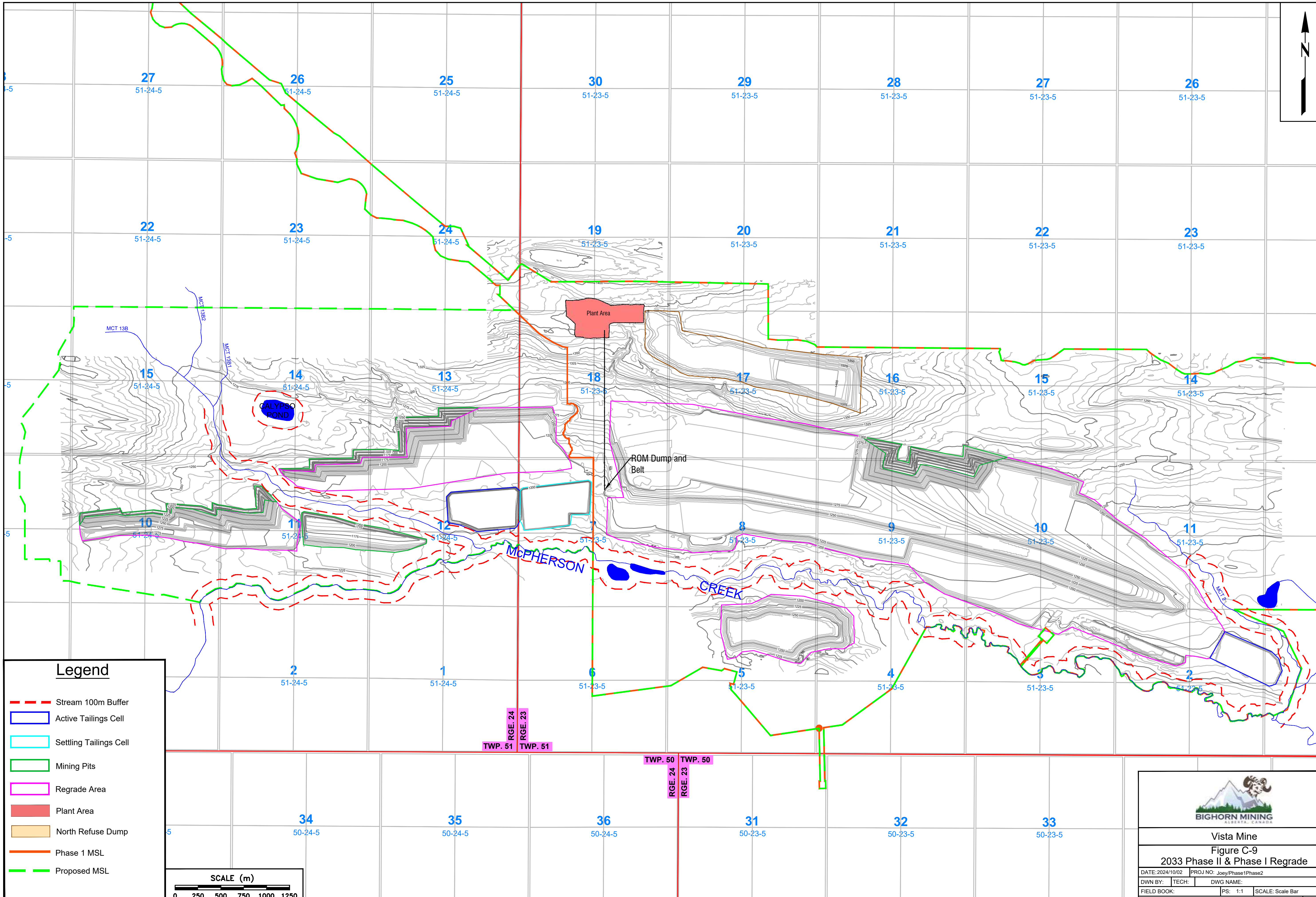
N
BIGHORN MINING
Vista Mine
Figure C-8
2032 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



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Plant Area
MCT 13B
MCT 13B2
MCT 13B1
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CALYPSO POND
ROM Dump and Belt
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McPHERSON
CREEK
MCT 2
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RGE. 24
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TWP. 51
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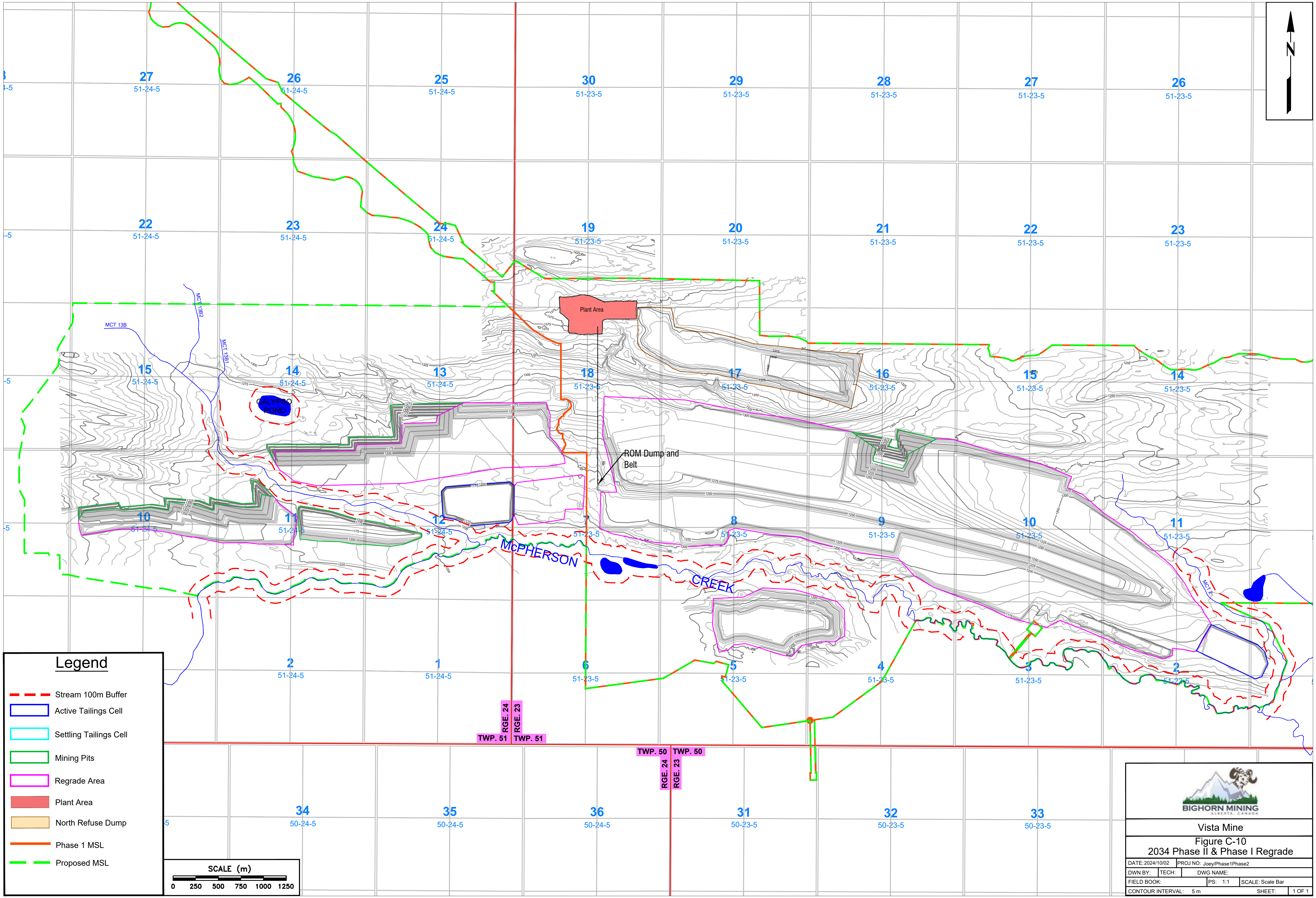
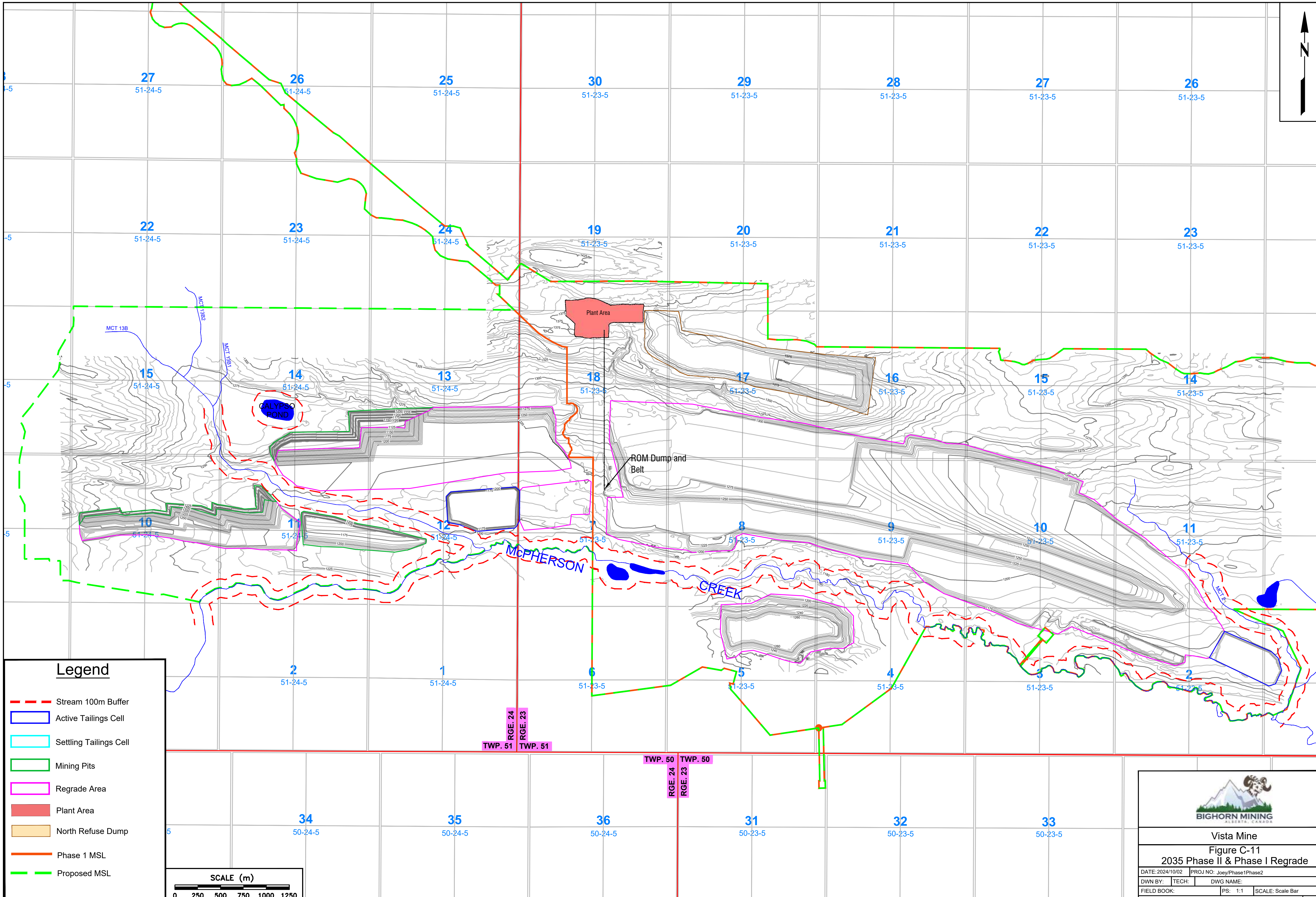
33 50-23-5
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-9
2033 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



Vista Mine

Figure C-10
2034 Phase II & Phase I Regrade

DATE: 2024/10/02	PROJ NO: Joey/Phase1Phase2		
DWN BY:	TECH:	DWG NAME:	
FIELD BOOK:	PS: 1:1	SCALE: Scale Bar	
CONTOUR INTERVAL: 5 m		SHEET:	1 OF 1


Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
N
Plant Area
ROM Dump and Belt
CALYPSO POND
McPHERSON CREEK
MCT 13B
MCT 13B2
MCT 13B1
MCT 2
RGE. 24 RGE. 23
TWP. 51 TWP. 51
TWP. 50 TWP. 50
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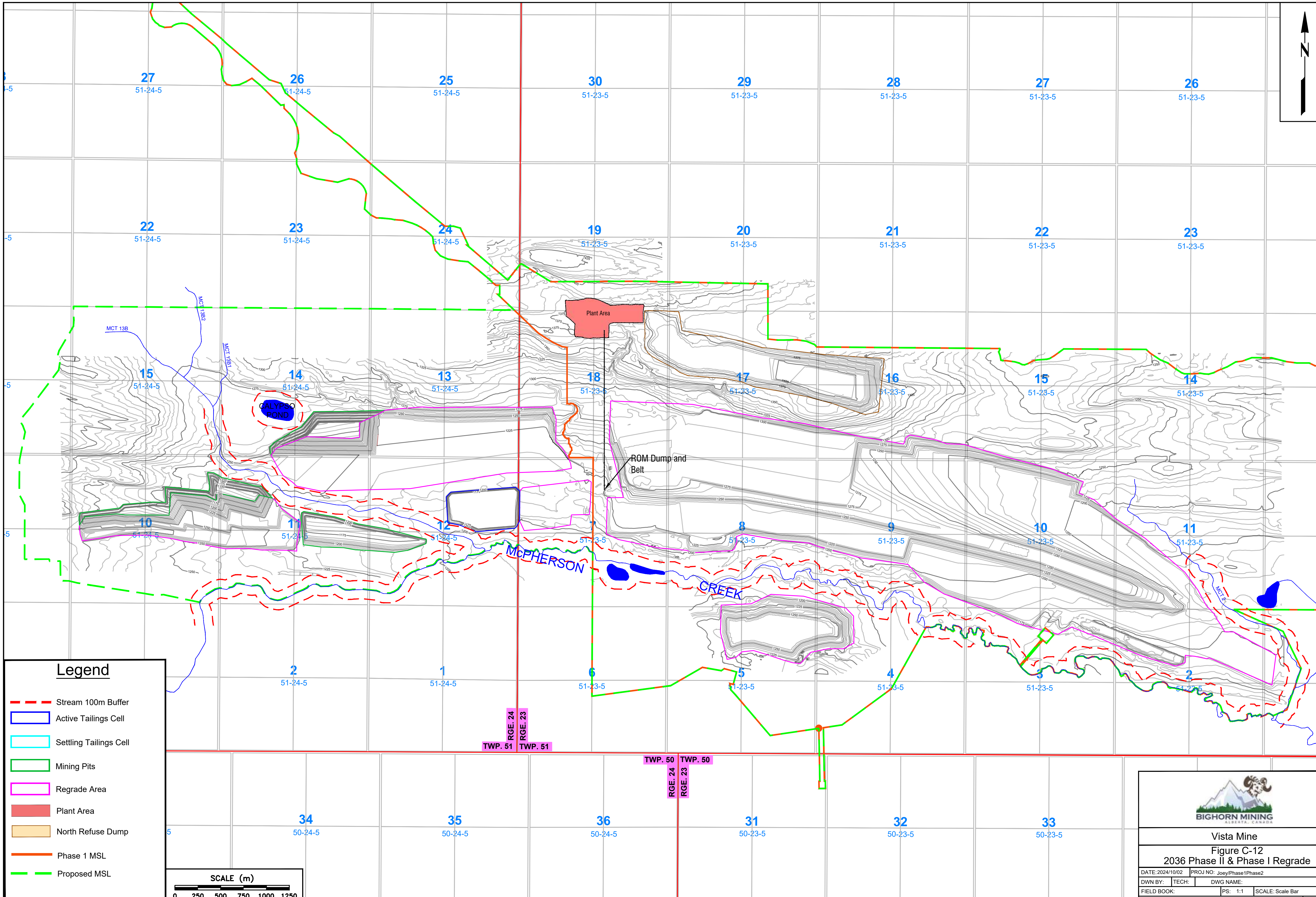
33 50-23-5
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-11
2035 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
N
Plant Area
ROM Dump and Belt
CALYPSO POND
McPHERSON CREEK
MCT 13B
MCT 13B2
MCT 13B1
TWP. 51
RGE. 24
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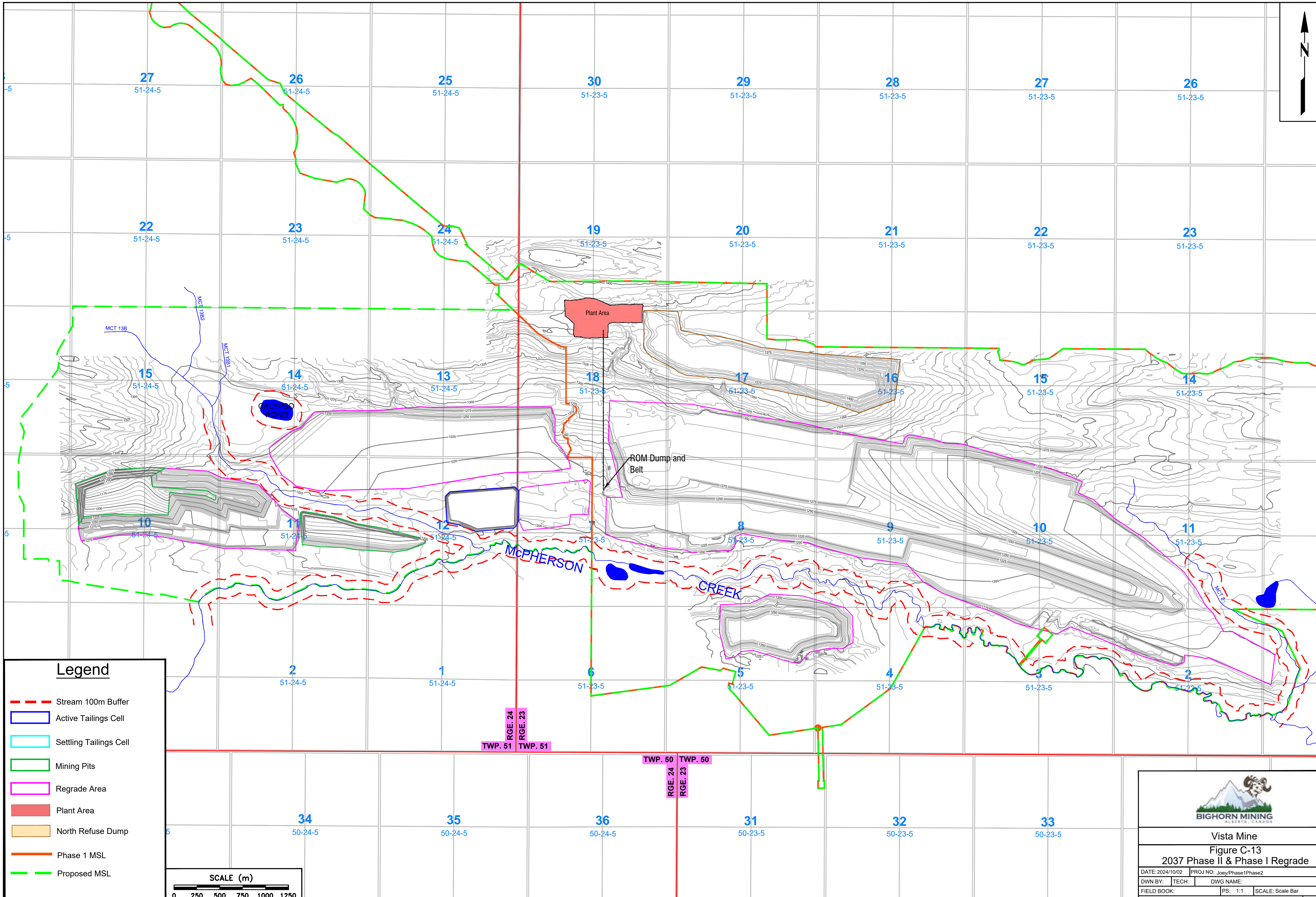
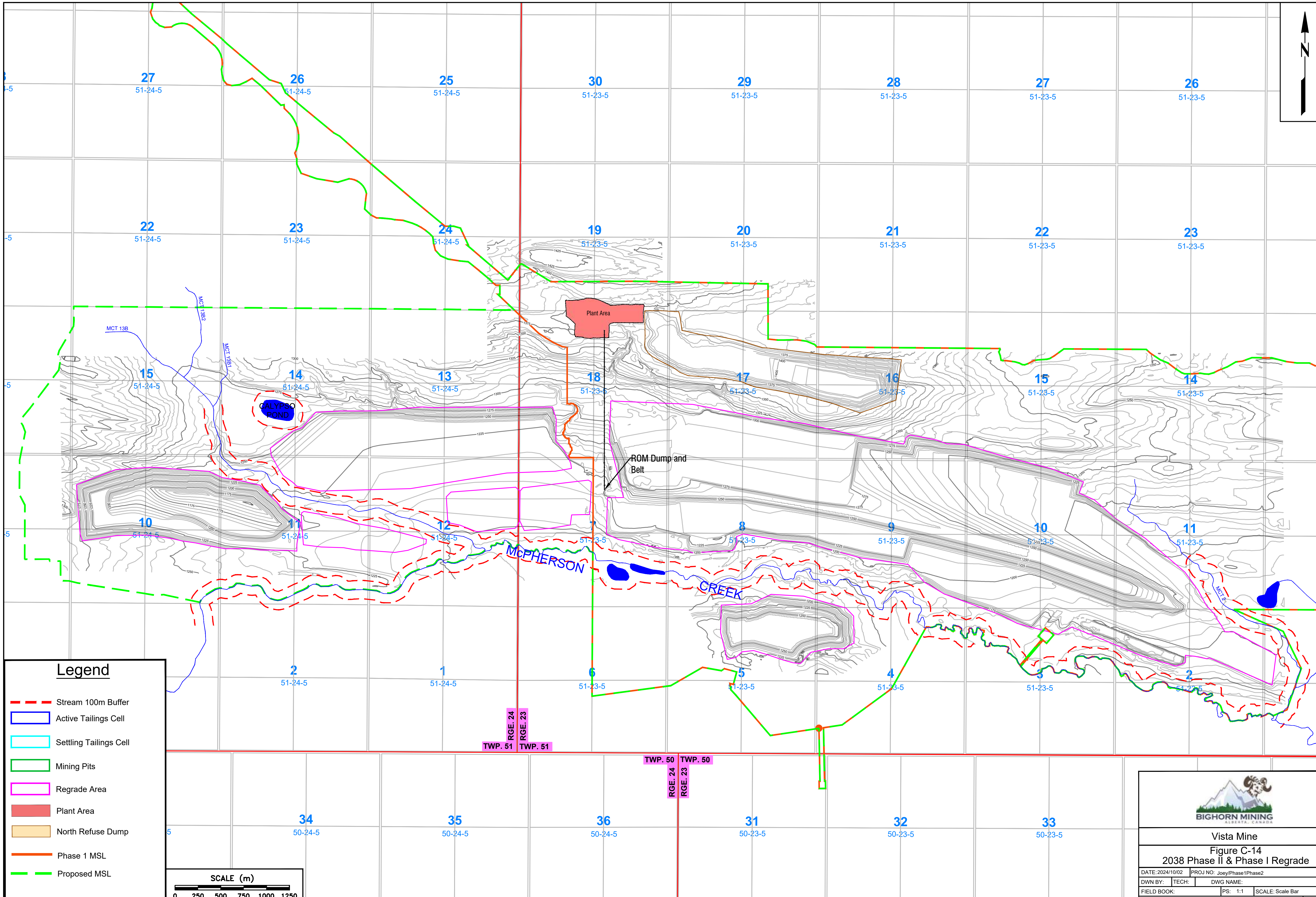
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-12
2036 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1



Vista Mine

Figure C-13
2037 Phase II & Phase I Regrade

DATE: 2024/10/02	PROJ NO: Joey/Phase1Phase2		
DWN BY:	TECH:	DWG NAME:	
FIELD BOOK:	PS: 1:1	SCALE: Scale Bar	
CONTOUR INTERVAL: 5 m		SHEET:	1 OF 1



Plant Area
ROM Dump and Belt
McPHERSON CREEK
CALYPSO POND
TWP. 51
TWP. 50
RGE. 24
RGE. 23
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Mining Pits
Regrade Area
Plant Area
North Refuse Dump
Phase 1 MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
Vista Mine
Figure C-14
2038 Phase II & Phase I Regrade
DATE: 2024/10/02
PROJ NO: Joey/Phase1Phase2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1

C.3.3.1 Mining Summary

The expected strip ratios are shown on Figure C-15. For the overall Vista Mine (inclusive of the remaining Phase I reserves as of 2023 year-end), mineable reserves total 143 Mt of run of mine (ROM) coal with 472 Mbcm of virgin waste and 40 Mbcm of rehandle for a ROM average strip ratio of 3.6:1. The annual production statistics are provided in Table C-3, and the annual coal production details are provided in Table C-4. The annual progression of highwall mining is presented in Figure C-16. The planned annual haul road progression is provided in Figure C-17, and details of the MCT13 Crossing are provided in Figure C-18.

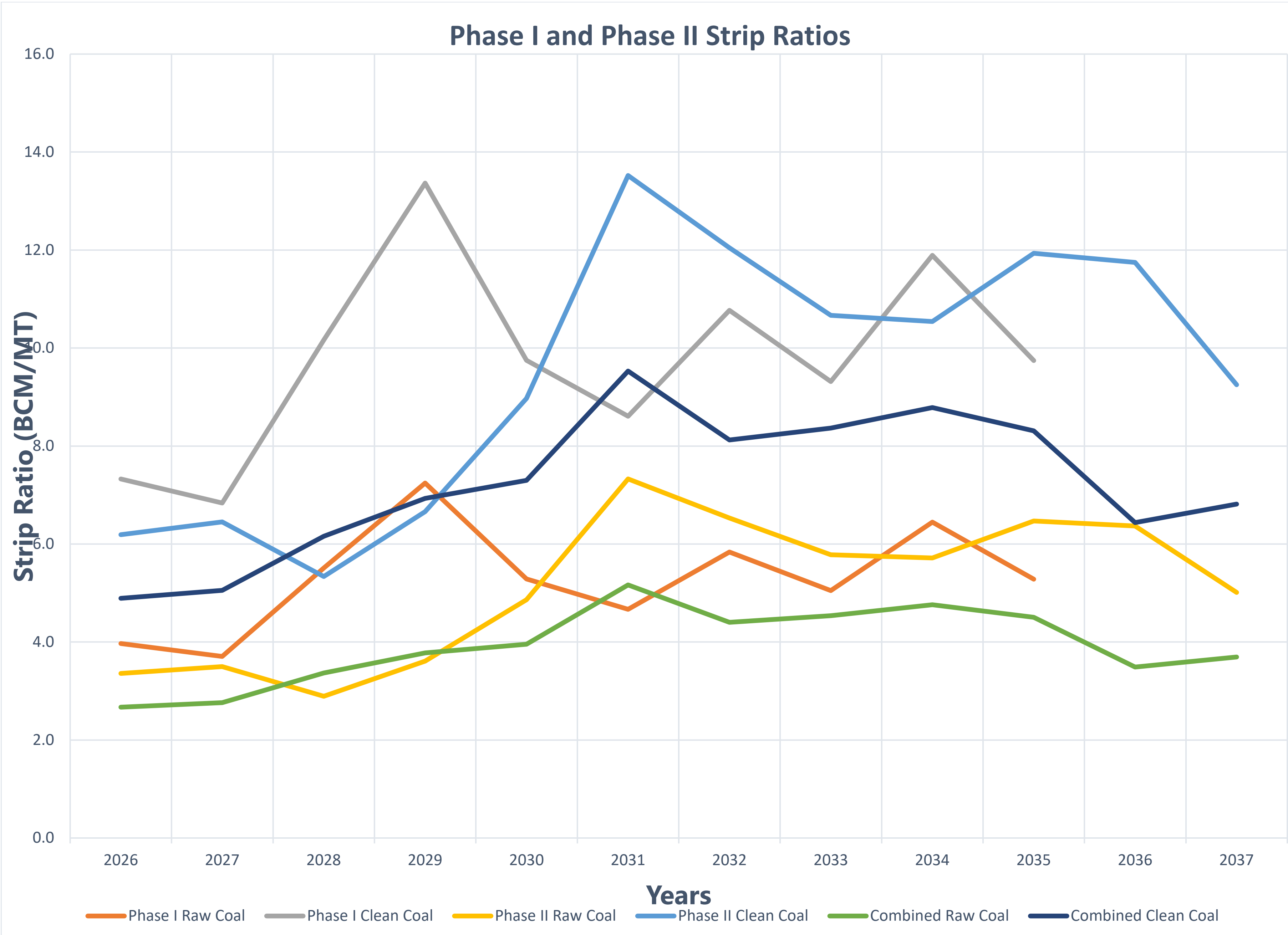
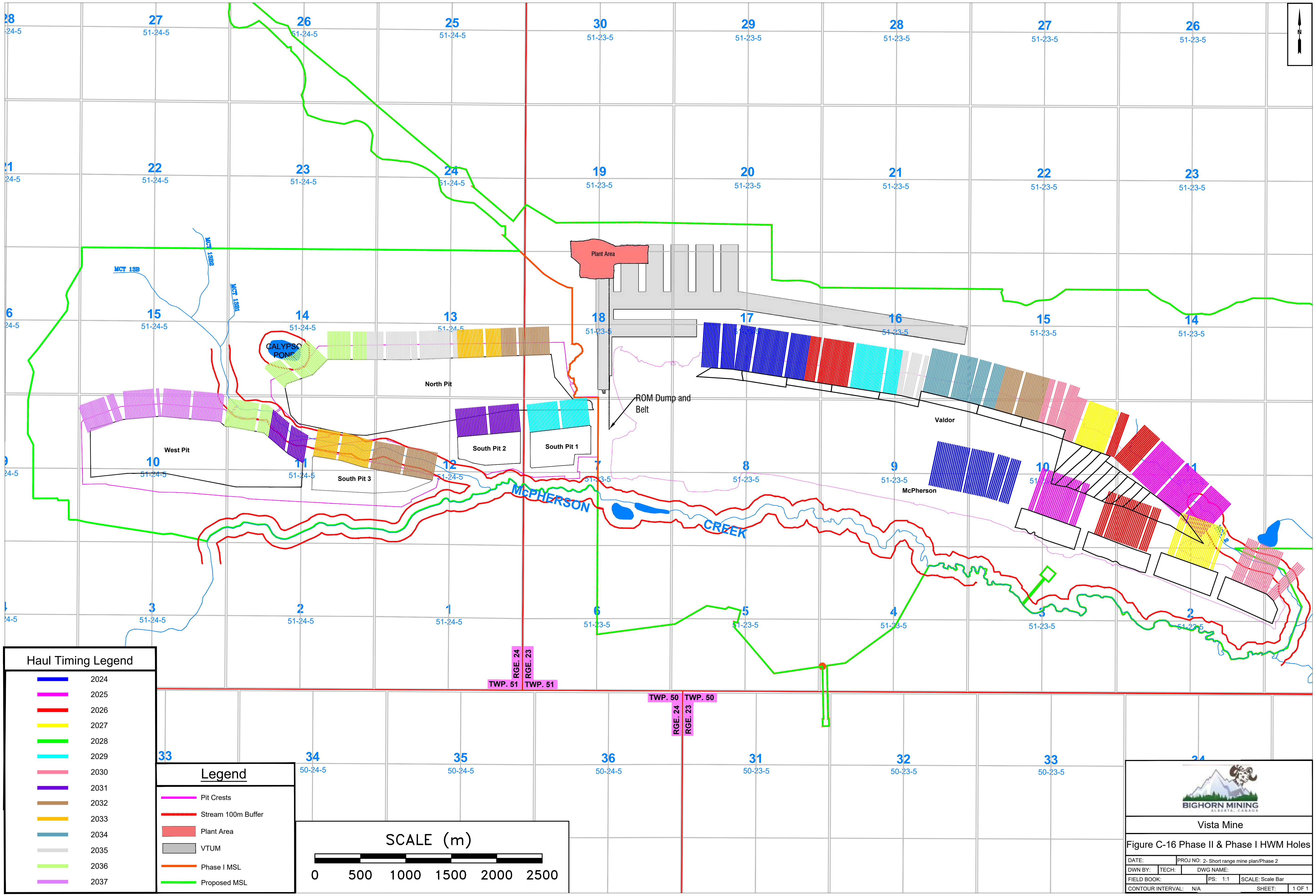

Phase I and Phase II Strip Ratios
Strip Ratio (BCM/MT)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
Years
Phase I Raw Coal
Phase I Clean Coal
Phase II Raw Coal
Phase II Clean Coal
Combined Raw Coal
Combined Clean Coal

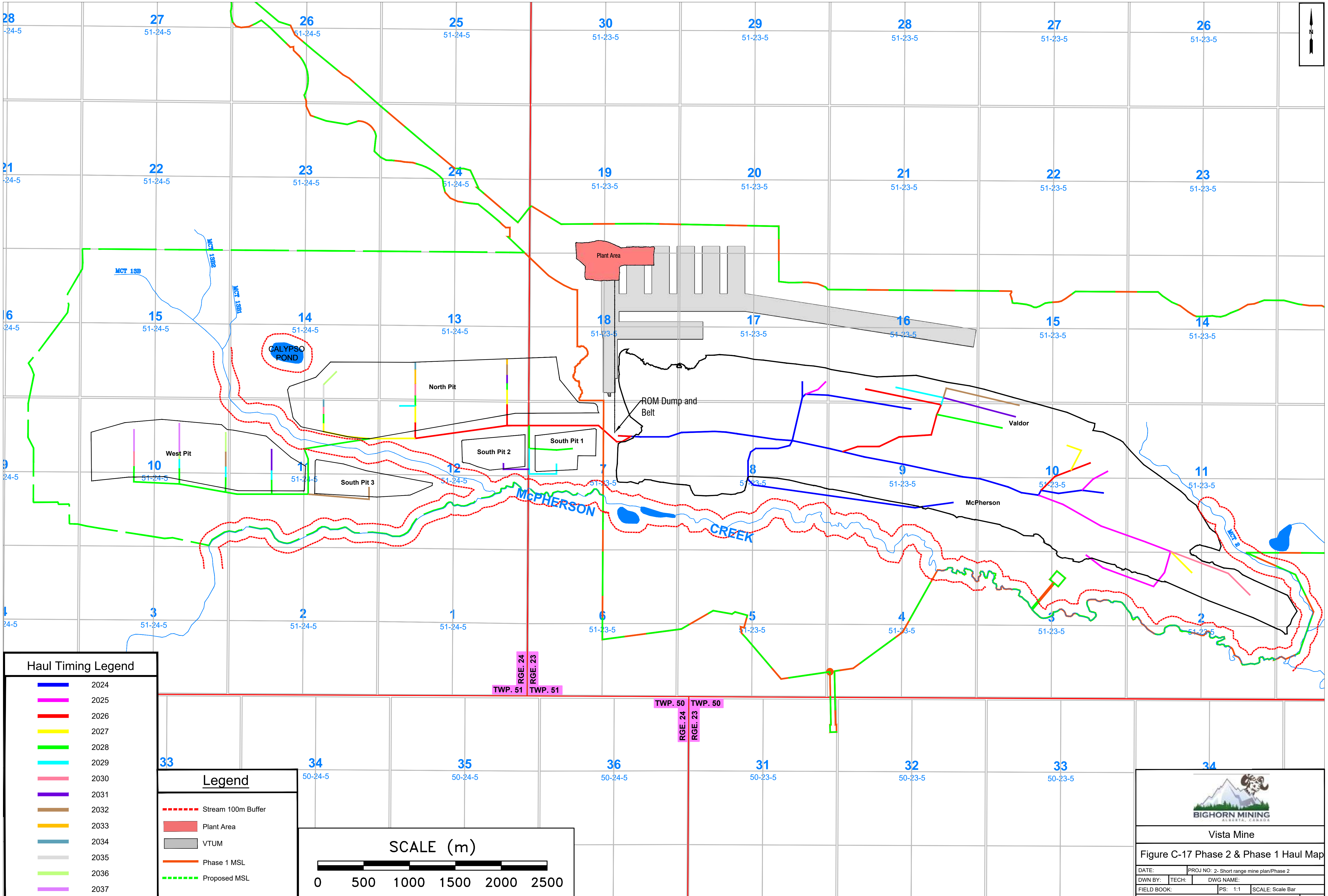
Table C-3 Annual Production Statistics

Description	Before 2026	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	Total 2024-2037
Phase 1 Surface Production Statistics														
Prime Stripping (000s bcm)	50,794	21,255	11,905	16,451	20,837	23,003	6,421	7,296	8,620	16,389	4,544	-	-	187,516
Rehandle (000s bcm)	3,792	1,679	428	732	901	890	419	395	478	829	321	-	-	10,865
Total Stripping (000s bcm)	54,585	22,933	12,333	17,184	21,738	23,893	6,841	7,691	9,098	17,218	4,866	-	-	198,381
Raw Coal Mined (000s RMT)	16,145	5,776	3,328	3,119	3,001	4,521	1,466	1,318	1,802	2,671	921	-	-	44,067
Clean Coal Produced (000s CMT)	8,751	3,131	1,804	1,691	1,626	2,450	795	714	977	1,448	499	-	-	23,885
Raw Stripping Ratio (bcm/RMT)	3.4	4.0	3.7	5.5	7.2	5.3	4.7	5.8	5.0	6.4	5.3	-	-	4.5
Clean Stripping Ratio (bcm/CMT)	6.2	7.3	6.8	10.2	13.4	9.8	8.6	10.8	9.3	11.9	9.7	-	-	8.3
Phase 1 Highwall Miner Production Statistics														
Raw Coal Mined (000s RMT)	4,862	3,094	1,868	-	1,192	2,146	-	1,067	-	1,668	569	-	-	16,465
Clean Coal Produced (000s CMT)	2,635	1,677	1,012	-	646	1,163	-	578	-	904	308	-	-	8,924
Phase 2 Surface Production Statistics														
Prime Stripping (000s bcm)	-	15,916	21,571	19,587	14,336	12,104	29,104	28,543	26,985	18,770	30,218	33,316	33,977	284,427
Rehandle (000s bcm)	-	363	701	1,320	2,918	1,234	1,111	2,203	2,523	1,965	3,033	5,336	6,585	29,290
Total Stripping (000s bcm)	-	16,279	22,271	20,907	17,254	13,337	30,215	30,746	29,508	20,735	33,251	38,652	40,562	313,717
Raw Coal Mined (000s RMT)	-	4,850	6,370	7,228	4,778	2,743	4,123	4,710	5,103	3,629	5,140	6,069	8,092	62,836
Clean Coal Produced (000s CMT)	-	2,629	3,453	3,918	2,590	1,487	2,235	2,553	2,766	1,967	2,786	3,290	4,386	34,057
Raw Stripping Ratio (bcm/RMT)	-	3.4	3.5	2.9	3.6	4.9	7.3	6.5	5.8	5.7	6.5	6.4	5.0	5.0
Clean Stripping Ratio (bcm/CMT)	-	6.2	6.5	5.3	6.7	9.0	13.5	12.0	10.7	10.5	11.9	11.7	9.2	9.2
Phase 2 Highwall Miner Production Statistics														
Raw Coal Mined (000s RMT)	-	-	-	-	871	-	1,585	1,637	1,608	-	1,834	5,007	2,889	15,430
Clean Coal Produced (000s CMT)	-	-	-	-	472	-	859	887	872	-	994	2,714	1,566	8,363
VTUM Production Statistics														
Raw Coal Mined (000s RMT)	966	966	966	966	483	-	-	-	-	-	-	-	-	4,346
Clean Coal Produced (000s CMT)	579	579	579	579	290	-	-	-	-	-	-	-	-	2,607
Total Production														
Total Raw Coal Mined (000s RMT)	21,973	14,686	12,532	11,313	10,325	9,410	7,174	8,731	8,513	7,969	8,464	11,076	10,980	143,144
Total Clean Coal Mined (000s CMT)	11,965	8,016	6,848	6,187	5,624	5,100	3,888	4,732	4,614	4,319	4,587	6,003	5,951	77,836
Total Raw Stripping Ratio (bcm/RMT)	2.5	2.7	2.8	3.4	3.8	4.0	5.2	4.4	4.5	4.8	4.5	3.5	3.7	3.6
Total Clean Stripping Ratio (bcm/CMT)	4.6	4.9	5.1	6.2	6.9	7.3	9.5	8.1	8.4	8.8	8.3	6.4	6.8	6.6

Table C-4 Annual Coal Production Details

		Year													
		Before 2026	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**LOM**
Run-of-mine coal ('000 tonnes)	Val D'Or	17,737	12,889	8,710	7,443	6,344	5,444	2,568	4,389	7,052	7,509	7,807	7,407	4,178	99,479
	Arbour	0	647	780	487	201	291	141	142	657	460	657	748	1,149	6,358
	McLeod	785	514	733	276	833	954	1,178	680	314	0	0	740	1,332	8,339
	McPherson	3,451	636	2,309	3,107	2,947	2,720	3,286	3,520	490	0	0	2,182	4,321	28,968
	Total	21,972	14,686	12,532	11,313	10,325	9,410	7,174	8,731	8,513	7,969	8,464	11,076	10,980	143,144
ROM ASH %	Val D'Or	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	Arbour	0	35	35	35	35	35	35	35	35	35	35	35	35	35
	McLeod	32	32	32	32	32	32	32	32	32	0	0	32	32	32
	McPherson	24	24	24	24	24	24	24	24	24	0	0	24	24	24
	Weighted Average	27	27	27	27	27	27	27	26	27	27	27	27	27	27
YIELD %	Val D'Or	54.5%	54.6%	54.8%	54.9%	54.6%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.5%
	Arbour		54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%
	McLeod	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	0	0	54.2%	54.2%	54.2%
	McPherson	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	0	0	54.2%	54.2%	54.2%
	Weighted Average	54.5%	54.6%	54.6%	54.7%	54.5%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%	54.4%
Clean Metric Coal ('000 tonnes)	Val D'Or	9,669	7,043	4,777	4,089	3,466	2,951	1,392	2,379	3,822	4,070	4,231	4,015	2,265	54,169
	Arbour	0	351	423	264	109	158	76	77	356	249	356	405	623	3,446
	McLeod	425	279	397	150	451	517	639	369	170	0	0	401	722	4,520
	McPherson	1,870	344	1,252	1,684	1,597	1,474	1,781	1,908	265	0	0	1,183	2,342	15,700
	Total Clean	11,965	8,016	6,848	6,187	5,624	5,100	3,888	4,732	4,614	4,319	4,587	6,003	5,951	77,836
Calorific Value (kcal/kg)	Val D'Or	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810	5,810
	Arbour	0	5,835	5,835	5,835	5,835	5,835	5,835	5,835	5,835	5,835	5,835	5,835	5,835	5,835
	McLeod	5,518	5,518	5,518	5,518	5,518	5,518	5,518	5,518	5,518	0	0	5,518	5,518	5,518
	McPherson	5,816	5,816	5,816	5,816	5,816	5,816	5,816	5,816	5,816	0	0	5,816	5,816	5,816
	Weighted Average	5,800	5,801	5,795	5,805	5,788	5,783	5,765	5,790	5,801	5,811	5,812	5,793	5,779	5,795


Haul Timing Legend
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
Legend
Pit Crests
Stream 100m Buffer
Plant Area
VTUM
Phase I MSL
Proposed MSL
SCALE (m)
0 500 1000 1500 2000 2500
Plant Area
ROM Dump and Belt
CALYPSO POND
North Pit
West Pit
South Pit 3
South Pit 2
South Pit 1
Valdor
McPherson
MCPHERSON
CREEK
MCT 13B
MCT 13B2
MCT 13B1
RGE. 24
RGE. 23
TWP. 51
TWP. 50
BIGHORN MINING
Vista Mine
Figure C-16 Phase II & Phase I HWM Holes
DATE:
PROJ NO: 2- Short range mine plan/Phase 2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: N/A
SHEET: 1 OF 1


N
Plant Area
North Pit
West Pit
South Pit 1
South Pit 2
South Pit 3
ROM Dump and Belt
Valdor
McPherson
CALYPSO POND
MCPHERSON CREEK
MCT 13B
MCT 13B2
MCT 13B1
MCT 8
RGE. 24
RGE. 23
TWP. 51
TWP. 50
Haul Timing Legend
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
Legend
Stream 100m Buffer
Plant Area
VTUM
Phase 1 MSL
Proposed MSL
SCALE (m)
0 500 1000 1500 2000 2500
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-17 Phase 2 & Phase 1 Haul Map
DATE:
PROJ NO: 2- Short range mine plan/Phase 2
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: N/A
SHEET: 1 OF 1

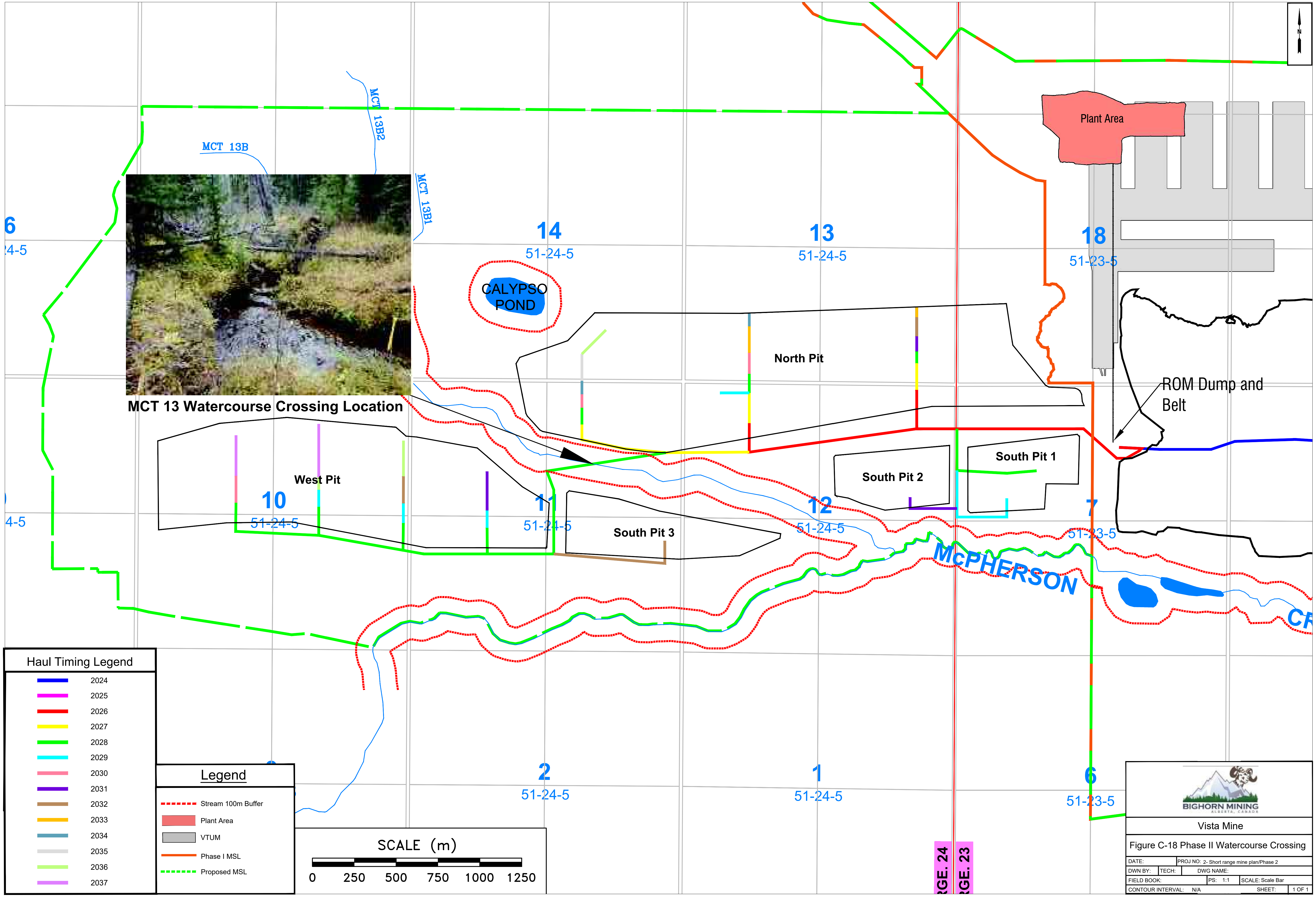


Figure C-18 Phase II Watercourse Crossing

C.3.3.2 Post-Mining

Mining will end in the final phase of the West pit. An end pit lake will be developed within the West pit in the last two years of development. Based on a review of the post-mining hydrology and hydrogeology impact assessments, a design water surface elevation of 1,220 m was determined for the end pit lake. There will not be a defined inlet channel for the lake; it will rely on local surface water and groundwater inflow. The overflow is planned to be directed to MCT13, which flows to McPherson Creek, to help maintain stream baseflow in MCT13 as the groundwater table and groundwater-fed baseflow recovers. Because the natural surface water inflow rate to the end pit lake is expected to be low, Coalspur is proposing to divert water from the McLeod River to expedite the lake fill time.In 2040, the end pit lake is anticipated to be established and filling to begin. Filling is anticipated to be completed by 2070 with supplementation. Refer to the hydrogeology and hydrology reports located in CR #3 – Hydrogeology and CR #4 – Surface Water Hydrology respectively for details on the estimated filling times. The final end-of-mine status map, which illustrates the conceptual end-pit lake, has been included in Figure C-19. As part of Coalspur's adaptive management and continuous improvement commitments, plans are reconciled based on economical and operational feasibility, and environmental impact rating to ensure that plans are optimized appropriately, and project impacts are minimized as much as practical. Appendix C5 - End Pit Lake Design Evaluation provides conceptual design options to minimize impact rating based on the information and findings currently available within the Project EIA.

Decommissioning of Phase II infrastructure will include dismantling of the electrical lines and associated poles and substations, reclaiming haul roads and removing watercourse crossings, and reclaiming wastewater settling ponds and capping of the final tailings cell. Expressed water from the final tailings cell and the remaining process water from the CPP will be directed to the end pit lake. Water Quality is summarized in CR #5 – Water Quality. If required, based on either volumes or concentrations, reverse osmosis may be an option to ensure suitable water quality. The infrastructure that was constructed for Phase I is addressed in those regulatory documents, applications and authorizations specific to Phase I and are therefore not covered here. Phase I infrastructure includes the processing plant, offices, raw and clean coal conveyors, Phase I haul roads and settling ponds, loadout, electrical substations, etc.

Best management practices, including spill prevention and leak detection monitoring, and secondary containment will reduce the potential of any effects to groundwater and soil quality. The spill response plan is in place to minimize the extent and impact from any accidental spills or leaks. Nevertheless, at a long-lived heavy industrial operation such as this, the risk of accidental hydrocarbon releases and operational incidents exists. At closure, prior to soil placement, known or high-risk sites will be assessed to determine if decontamination actions are necessary, in addition to requirements for soil monitoring required under condition 4.5.1. If any sites are identified, further assessment and mitigations will be undertaken consistent with Tier 1 (Alberta, 2024) and Tier 2 (Alberta, 2024b) Guidelines.

Table C-5 summarizes the conceptual year-end disturbance and reclamation cumulative totals for the life-of-mine. Further details regarding the conceptual reclamation plan are discussed in Part F – Conceptual Conservation and Reclamation Plan.

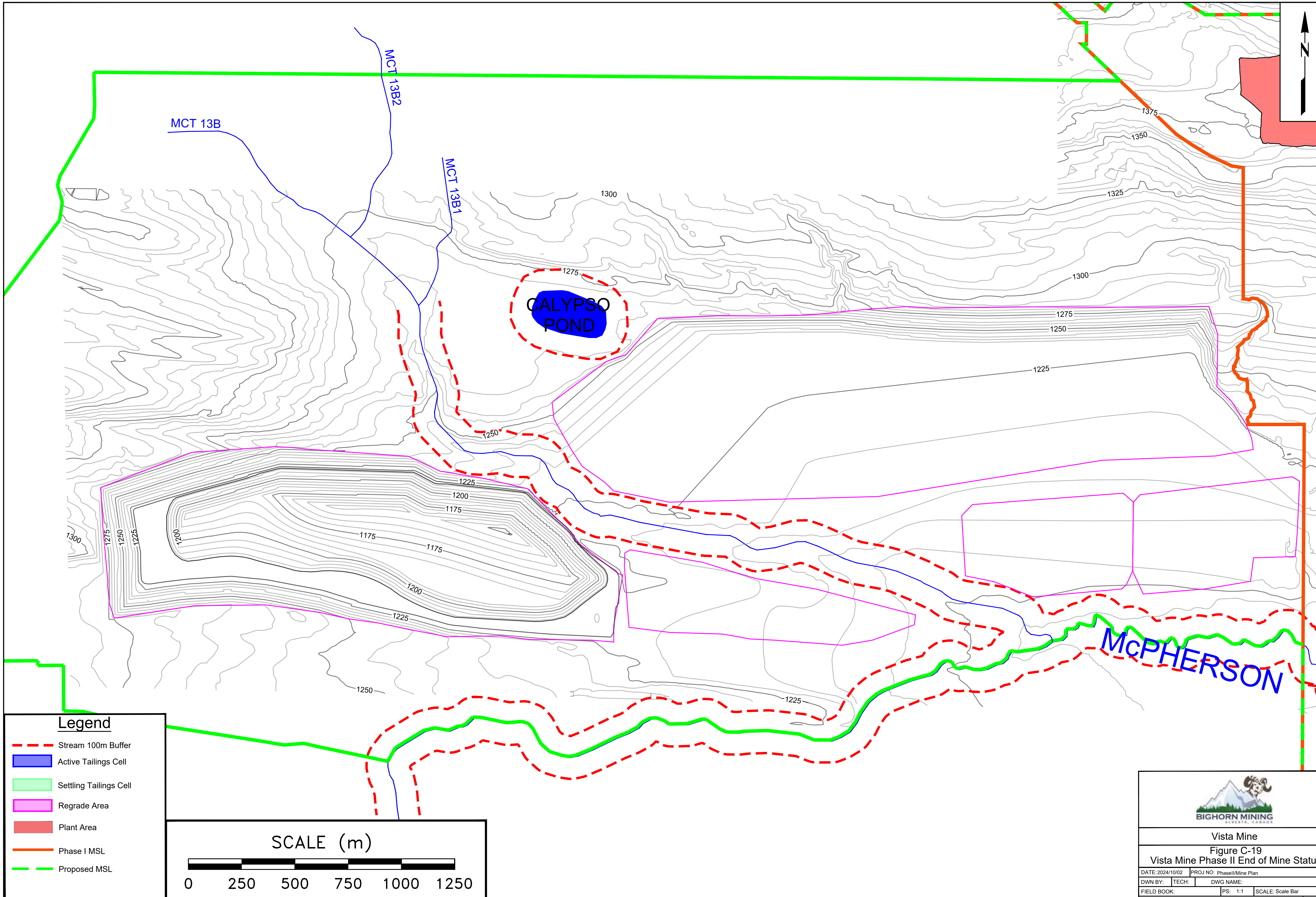

N
MCT 13B
MCT 13B2
MCT 13B1
CALYPSO POND
McPHERSON
1375
1350
1325
1300
1275
1250
1225
1200
1175
Legend
Stream 100m Buffer
Active Tailings Cell
Settling Tailings Cell
Regrade Area
Plant Area
Phase I MSL
Proposed MSL
SCALE (m)
0 250 500 750 1000 1250
BIGHORN MINING
ALBERTA, CANADA
Vista Mine
Figure C-19
Vista Mine Phase II End of Mine Status
DATE: 2024/10/02
PROJ NO: PhaseII/Mine Plan
DWN BY:
TECH:
DWG NAME:
FIELD BOOK:
PS: 1:1
SCALE: Scale Bar
CONTOUR INTERVAL: 5 m
SHEET: 1 OF 1

Table C-5 Reclamation Summary

	Total Cumulative Disturbance (ha)			Availability for Reclamation (ha)				
Timeframe	Total Footprint (ha)	Cleared	Mine Activities	Area Available for Reclamation	Soils Placed (Terrestrial & Wetlands & Aquatics)	Permanent Reclamation (Terrestrial)	Permanent Reclamation (Wetlands & Aquatics)	Temporary Reclamation (Terrestrial)
2026	190.3	73.0	117.1	-	0.1	-	-	-
2027	357.9	156.6	160.5	36.8	4.0	-	-	-
2028	400.8	67.3	274.9	33.1	25.3	0.1	-	-
2029	419.3	47.2	307.0	16.6	44.4	4.0	-	-
2030	478.7	72.8	340.4	16.6	23.4	23.1	2.3	-
2031	547.6	95.3	374.6	26.5	2.7	43.7	4.7	-
2032	567.5	44.4	420.6	31.7	22.1	44.1	4.7	-
2033	582.3	31.8	411.2	41.9	46.3	46.4	4.7	-
2034	605.5	38.2	364.4	42.4	89.5	65.0	5.9	-
2035	631.5	27.4	340.8	52.0	113.9	87.1	10.3	-
2036	669.2	38.3	309.5	50.3	110.8	144.1	16.3	-
2037	669.2	0.0	288.8	64.7	104.4	194.5	16.8	-
2038	669.2	0.0	186.0	35.7	176.5	251.6	19.4	-
2039	669.2	0.0	115.9	42.4	195.3	278.6	37.0	-
2040-2045	669.2	0.0	21.8	70.8	130.0	402.1	43.4	-
2046-2070	669.2	0.0	0.0	1.0	-	496.6	171.6	-

C.3.4 Pit Design Criteria

Design criteria have taken sensitive environmental components into consideration for the development of the Phase II mine plan. Through the environmental impact assessment process, a tributary to the McPherson Creek (MCT13) within the Mine's proposed footprint was assessed as a potential suitable fish habitat for the SARA-listed Athabasca Rainbow Trout. It was determined that it was in the best interest of the Project to revise the mine plan in order to avoid all direct impacts to potential suitable fish habitat for the Athabasca Rainbow Trout. McPherson Creek, a fish bearing creek, is located to the south of the McPherson seam subcrop and generally parallels the strike of the coal. A shallow open water wetland, locally known as Calypso pond, is located north of the mining footprint. This pond is a known Long-toed salamander breeding pond which are provincially listed as a species of concern.

The mine plan includes a 100 m buffer offset from mining activities along McPherson Creek, MCT13, and Calypso Pond. The 100 m offset north of McPherson Creek serves as the southern disturbance limit for all mining footprint. The 100 m offset from MCT13 splits the east and west portions of the project and the 100 m offset from Calypso Pond serves as the northern disturbance limit of the mining footprint.

Other key factors that were taken into consideration for design criteria are the locations of the subcrop seams, historic sites of high value, proximity to the Town of Hinton, and using as much of the current approved mine footprint as practicable.

The Phase II pits are designed primarily from experience with Phase I mining, taking into consideration environmental sensitivities such as MCT13, McPherson Creek, and Calypso Pond. The final pit shell was designed with the following parameters:

- Face Angle through Waste – 65^0;
- Face Angle through Till – 30^0;
- Truck/Shovel Bench height – 15 m; and
- Safety Bench Width – 16 m every other bench.

The final pit shell, as shown in each of the annual status maps, results in ~63 Million Raw Metric Tonne (Mrmt) pit production and ~15 Mrmt from highwall mining with ~284 Mbcm of waste for an overall prime strip ratio of 3.6 (BCM/RMT). The overall pit summary is included in Table C-6.

Table C-6 Pit Statistics

Phase II Mine License LOM Coal Quality and Waste Results By Seam (Including HWM)						
All Intervals	**Till Volume (000s BCM)**	**Consolidated Overburden (000s BCM)**	**Interburden (000s BCM)**	**Parting Volume (000s BCM)**	**Raw Coal Volume (000s BCM)**	**Raw Coal (000s tonnes)**
TILL	49,929	-	-	-	-	-
V7	-	70,492	-	-	889	1,423
V6	-	-	4,968	916	2,635	3,690
V5	-	-	9,896	11,331	5,983	8,974
V4	-	-	22,541	-	1,122	1,571
V3	-	-	7,580	13,964	11,157	17,852
V2	-	-	3,842	930	2,200	3,521
V1	-	-	1,609	-	2,337	3,576
A3	-	-	4,597	-	1,778	2,844
A2	-	-	2,489	-	1,372	2,195
A1	-	-	2,517	-	824	1,319
L3	-	36,743	-	-	104	171
L2	-	-	950	823	2,467	3,836
L1	-	-	2,002	164	188	308
P4	-	-	47,651	-	2,169	3,449
P3	-	-	1,074	605	4,172	6,299
P2	-	-	1,463	523	3,457	5,324
P1	-	-	1,169	-	2,317	3,498
Grand Total	**49,929**	**107,235**	**114,348**	**29,255**	**45,172**	**69,850**

C.3.5 Materials Handling

C.3.5.1 Materials Assumptions

The proposed pits within the Phase II footprint have approximately 284 Mbcm of waste that needs to be removed to access the three major coal seams. To properly simulate waste removal operations the following parameters were used:

- The angle of repose is 34^0;
- A final re-sloped angle of 27^0;
- Swell factor of 20%; and
- Fine tailings will be stored in mined out South Pits.

C.3.5.2 Loss and Dilution

In general, a 5-cm loss of coal at the seam roof contact was assumed, along with 5 cm out-of-seam dilution (OSD) at the seam floor. The mine plan is based on blasting down to the top of the next seam. Partings or interburden less than 1.0 m will be ripped by dozers and hauled out. Partings greater than 1.0 m will be blasted using the 270 mm (10.625") diesel drill fleet as required. A series of geotechnical drill cores were examined for opportunities to reduce the amount of seam loss and dilution. Upon inspection, it was found that there were a few footwalls that appeared competent and had a good colour change which would allow for more aggressive seam recovery and dilution reductions. Table C-7 summarizes the assumptions that were carried out in the mining model.

Table C-7 Seam Loss and Out of Seam Rock Dilution Factors

Seam	Coal Loss at Roof Thickness (m)	OSD at Floor Thickness (m)
V7	0.10	0.05
V6	0.05	0.05
V5U	0.05	0.05
V5L	0.05	0.05
V4	0.05	0.05
V3U	0.05	0.05
V3L	0.05	0.05
V2	0.05	0.05
V1	0.05	0.05
A3	0.10	0.05
A2	0.05	0.05
A1	0.05	0.05
L3	0.10	0.05
L2	0.05	0.05
L1	0.05	0.05
P4	0.10	0.05
P3	0.05	0.05
P2	0.05	0.05
P1	0.05	0.05

C.3.5.3 Material Allocation

Phase II plans to avoid the use of external rock dumps by maximizing the amount of in-pit backfilling within Phase II. When backfilling within Phase II is not possible, the material will be hauled to Phase I and used as backfill. Backfilling within Phase II will minimize haul distance; the west pit will be an end-pit lake post mining closure. Table C-8 summarizes the overall material balance.

Table C-8 Overall Material Balance

Period	0	1	2	3	4	5	6	7	8	9	10	11	12	X	Total
End Of Year	-2026	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	EOL	
Coal Mining															
Phase I															
Surface Mined Raw Coal (tonnes)	16,145,098	5,775,940	3,328,202	3,119,080	3,000,590	4,520,630	1,465,919	1,317,792	1,801,718	2,671,401	921,101	-	-	-	44,067,470
Highwall Miner Raw Coal (tonnes)	4,862,147	3,093,665	1,868,035	-	1,191,737	2,145,754	-	1,066,700	-	1,668,337	568,521	-	-	-	16,464,897
Vista Test Underground Mine Raw Coal (tonnes)	965,714	965,714	965,714	965,714	482,857	-	-	-	-	-	-	-	-	-	4,345,713
Total Phase I Raw Coal (tonnes)	**21,972,959**	**9,835,319**	**6,161,952**	**4,084,794**	**4,675,184**	**6,666,384**	**1,465,919**	**2,384,492**	**1,801,718**	**4,339,738**	**1,489,622**	**-**	**-**	**-**	**64,878,080**
Surface Mined Clean Coal (tonnes)	8,750,643	3,130,559	1,803,886	1,690,541	1,626,320	2,450,181	794,528	714,243	976,531	1,447,899	499,237	-	-	-	23,884,569
Highwall Miner Clean Coal (tonnes)	2,635,284	1,676,767	1,012,475	-	645,922	1,162,999	-	578,151	-	904,239	308,138	-	-	-	8,923,974
Vista Test Underground Mine Clean Coal (tonnes)	580,428	580,428	580,428	580,428	290,916	-	-	-	-	-	-	-	-	-	2,612,630
Total Phase I Clean Coal (tonnes)	**11,965,355**	**5,386,754**	**3,395,789**	**2,269,970**	**2,561,955**	**3,613,180**	**794,528**	**1,292,395**	**976,531**	**2,352,138**	**807,375**	**-**	**-**	**-**	**35,415,971**
Phase II															
Surface Mined Raw Coal (tonnes)	-	4,850,247	6,370,101	7,227,888	4,778,221	2,743,160	4,122,875	4,709,593	5,103,188	3,629,155	5,140,405	6,069,381	8,091,692	-	62,835,907
Highwall Miner Raw Coal (tonnes)	-	-	-	-	871,101	-	1,585,077	1,636,922	1,608,127	-	1,833,743	5,006,681	2,888,772	-	15,430,423
Total Phase II Raw Coal (tonnes)	**-**	**4,850,247**	**6,370,101**	**7,227,888**	**5,649,322**	**2,743,160**	**5,707,952**	**6,346,514**	**6,711,316**	**3,629,155**	**6,974,148**	**11,076,063**	**10,980,464**	**-**	**78,266,330**
Surface Mined Clean Coal (tonnes)	-	2,628,834	3,452,595	3,917,515	2,589,796	1,486,793	2,234,598	2,552,599	2,765,928	1,967,002	2,786,099	3,289,605	4,385,697	-	34,057,061
Highwall Miner Clean Coal (tonnes)	-	-	-	-	472,137	-	859,112	887,211	871,605	-	993,889	2,713,621	1,565,715	-	8,363,289
Total Phase II Clean Coal (tonnes)	**-**	**2,628,834**	**3,452,595**	**3,917,515**	**3,061,933**	**1,486,793**	**3,093,710**	**3,439,811**	**3,637,533**	**1,967,002**	**3,779,988**	**6,003,226**	**5,951,411**	**-**	**42,420,351**
Overburden & Interburden															
Phase I Mined OB&IB (BCM)	50,793,811	21,254,682	11,905,074	16,451,327	20,836,785	23,003,302	6,421,374	7,295,935	8,619,825	16,389,189	4,544,216	-	-	-	187,515,520
Phase II Mined OB&IB (BCM)		15,916,109	21,570,575	19,587,456	14,335,715	12,103,715	29,103,845	28,543,089	26,985,066	18,770,340	30,218,126	33,316,084	33,976,694	-	284,426,815
Total Waste Rock Mined (BCM)	**50,793,811**	**37,170,790**	**33,475,648**	**36,038,784**	**35,172,501**	**35,107,017**	**35,525,219**	**35,839,024**	**35,604,892**	**35,159,529**	**34,762,342**	**33,316,084**	**33,976,694**	**-**	**471,942,335**
Refuse Generation															
Phase I Tailings Generation (LCM)	3,984,463	1,793,789	1,130,798	755,900	853,131	1,203,189	264,578	430,367	325,185	783,262	268,856	-	-	-	11,793,518
Phase II Tailings Generation (LCM)	-	875,402	1,149,714	1,304,533	1,019,624	495,102	1,030,205	1,145,457	1,211,299	655,012	1,258,736	1,999,074	1,981,820	-	14,125,977
Total Tailings Generation (LCM)	**3,984,463**	**2,669,191**	**2,280,512**	**2,060,433**	**1,872,755**	**1,698,291**	**1,294,783**	**1,575,824**	**1,536,483**	**1,438,274**	**1,527,592**	**1,999,074**	**1,981,820**	**-**	**25,919,495**

Period	0	1	2	3	4	5	6	7	8	9	10	11	12	X	Total
End Of Year	**-2026**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**EOL**	
Phase I Coarse Refuse Generation (LCM)	4,111,308	1,854,881	1,171,990	785,840	882,364	1,239,303	272,519	443,285	334,945	806,772	276,926	-	-	-	12,180,133
Phase II Coarse Refuse Generation (LCM)	-	901,677	1,184,223	1,343,688	1,050,228	509,963	1,061,127	1,179,838	1,247,656	674,672	1,296,517	2,059,076	2,041,304	-	14,549,968
Total Coarse Refuse Generation (LCM)	**4,111,308**	**2,756,558**	**2,356,213**	**2,129,528**	**1,932,591**	**1,749,265**	**1,333,646**	**1,623,123**	**1,582,601**	**1,481,443**	**1,573,443**	**2,059,076**	**2,041,304**	**-**	**26,730,101**
Phase I Overburden & Interburden Disposal Area															
Val D'Or Pit Backfill (LCM)	40,108,190	26,879,951	22,461,895	14,006,521	16,244,706	27,836,595	14,828,016	13,351,730	6,916,039	16,316,873	16,141,214	-	-	-	215,091,729
McPherson Pit Capping & Backfill (LCM)	7,246,953	8,579,209	-	10,167,751	14,388,221	9,890,574	7,711,566	6,381,496	6,489,099	-	-	4,592,506	-	-	75,447,375
South Dump (LCM)	9,082,426	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcrop Dump (LCM)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phase I OB&IB Disposal (LCM)	**56,437,568**	**35,459,160**	**22,461,895**	**24,174,272**	**30,632,927**	**37,727,168**	**22,539,582**	**19,733,226**	**13,405,138**	**16,316,873**	**16,141,214**	**4,592,506**	**-**	**-**	**290,539,104**
Phase II Overburden & Interburden Disposal Area															
North Pit Backfill (LCM)	-	3,923,541	13,103,976	9,930,590	3,666,036	-	9,000,315	9,425,779	17,897,689	9,970,679	21,424,502	21,052,244	27,173,832	-	146,569,184
West Pit Backfill (LCM)	-	-	-	4,437,970	3,349,563	-	6,886,551	7,295,842	7,116,183	-	-	9,569,201	8,865,757	- 27,064,533	20,456,534
South Pit Capping & Backfill (LCM)	-	-	-	-	-	-	-	2,135,160	-	11,633,340	-	-	-	27,064,533	40,833,034
Phase I Backfill (000s LCM)	-	11,842,847	9,234,035	5,895,019	7,480,943	12,167,944	15,404,722	11,626,631	3,827,555	-	11,092,085	4,592,506	-	-	93,164,289
Total Phase II OB&IB Disposal (000s LCM)	**-**	**3,923,541**	**13,103,976**	**14,368,560**	**7,015,599**	**-**	**15,886,867**	**18,856,782**	**25,013,872**	**21,604,019**	**21,424,502**	**30,621,445**	**36,039,589**	**-**	**301,023,041**
Phase I & II Refuse Disposal Area															
McPherson Tailings Cell 4,3	1,594,226	-	-	-	-	-	-	-	-	-	-	-	-	-	1,594,226
McPherson Tailings Cell 5	1,673,689	-	-	-	-	-	-	-	-	-	-	-	-	-	1,673,689
McPherson Tailings Cell 6	716,548	1,269,119	-	-	-	-	-	-	-	-	-	-	-	-	1,985,667
McPherson Tailings Cell 7	-	1,712,050	584,447	-	-	-	-	-	-	-	-	-	-	-	2,296,497
McPherson Tailings Cell 8	-	-	1,696,065	2,060,433	171,875	-	-	-	-	-	-	-	-	-	3,928,372
McPherson Tailings Cell 9	-	-	-	-	-	-	-	-	885,270	1,438,274	1,527,592	1,324,192	-	-	5,175,328
South Pit Tailings Cell 1	-	-	-	-	1,700,880	1,698,291	1,294,783	1,575,824	326,028	-	-	-	-	-	6,595,807
South Pit Tailings Cell 2	-	-	-	-	-	-	-	-	-	-	-	674,882	1,981,820	-	2,656,702
South Pit Tailings Cell 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Period	0	1	2	3	4	5	6	7	8	9	10	11	12	X	Total
End Of Year	**-2026**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**EOL**	
North Dump	4,205,583	2,817,319	2,407,070	2,174,777	1,976,684	1,792,539	1,366,638	1,663,276	1,621,751	1,518,091	1,612,366	2,110,014	2,091,802	-	27,357,910
Total Tailings Disposal	**3,984,463**	**2,669,191**	**2,280,512**	**2,060,433**	**1,872,755**	**1,698,291**	**1,294,783**	**1,575,824**	**1,211,299**	**1,438,274**	**1,527,592**	**1,999,074**	**1,981,820**	**-**	**25,906,288**
Total Refuse Disposal	**4,205,583**	**2,817,319**	**2,407,070**	**2,174,777**	**1,976,684**	**1,792,539**	**1,366,638**	**1,663,276**	**1,621,751**	**1,518,091**	**1,612,366**	**2,110,014**	**2,091,802**	**-**	**27,357,910**

C.4 Air Emissions

Several sources and activities associated with the Vista Mine have the potential to create air emissions and impact ambient air quality. Air emissions are expected from fugitive dust due to mining activities, as well as other criteria air contaminants from blasting and exhaust of fossil fuel combustion equipment. A comprehensive air quality impact assessment was completed as part of this Environmental Impact Assessment (CR #1 – Air Quality). The key substances considered in the impact assessment to the ambient air quality are:

- Particulate Matter <2.5 µm in diameter ($PM_{2.5}$);
- Particulate Matter <10 µm in diameter (PM_{10});
- Total Suspended Particulates (TSP);
- Nitrogen Dioxide (NO_2)- component of emissions of nitrogen oxides, NOx, which comprises of nitric oxide, NO, and NO_2);
- Carbon Monoxide (CO);
- Sulphur Dioxide (SO_2);
- Depositions;
- Odour;
- Ozone; and
- GHG.

C.4.1 Fugitive Emissions

It is assumed that truck traffic (from active pits to waste dumps and plant) will operate 24 hours a day, 363 days a year, and that the Coal Processing Plant (including ROM) will operate up to 250 days a year. It is also assumed that the loading of clean coal will occur at any time of day or night, and there will be approximately 250 unit trains loaded in a typical year.

Fugitive dust emissions, such as TSP, PM_{10}, and $PM_{2.5}$, are expected from mining activities. The Project air emission sources were identified and quantified as part of the Air Quality Impact Assessment. Emission sources for the Project are:

- Drilling and blasting;
- Loading and unloading;
- Bulldozing;
- Grading;
- Road dust;
- Wind erosion; and
- Diesel and gasoline exhaust.

C.4.2 Point Source Emissions

The Project will result in air emissions from diesel combustion in both the mine operations and haul fleets. While primary combustion products are carbon dioxide (CO_2) and water vapour (H_2O), trace amounts of oxides of nitrogen (NOx), particulate matter with diameters less than 2.5 µm ($PM_{2.5}$), particulate matter less than 10 µm (PM_{10}) and volatile organic compounds (VOC) are also produced. Trace amounts of SO_2, carbon monoxide (CO), and polycyclic aromatic hydrocarbons (PAH) emissions will also occur. A portion of particulate is comprised of metals, and those associated with combustion of diesel are considered. Ammonia (NH_3) may also be present in the background area and is also considered.

C.4.3 Explosives and Exhaust Criteria Air Contaminants Emissions

Ammonium Nitrate and Fuel Oil (ANFO) are expected to be used in Phase II as the primary blasting agent, as per the current mining operation procedures. ANFO emission factors for explosives were taken from US EPA AP42 (US EPA, 1980). SO_2 emission factor was based on the Australia NPI manual for explosives detonation (Australia Government, 2016). The SO_2 emission factor of 0.06 kg/tonne in Australia NPI is based on 10 parts per million (ppm) sulphur in diesel in the ANFO mixture, and it is scaled to the 15 ppm Canadian Standard for the ultra-low sulphur diesel fuel (Government of Canada, 2017).

The NONROAD2008a model, designed specifically for estimating exhaust emission from off-road diesel engines within the MOVES3.0.2 model, was used to estimate the mine fleet NOX, CO, PM2.5, PM10 and TSP exhaust emissions. The mine fleet exhaust SO2 emissions were estimated using mass balance based on the fuel consumption rates provided by Coalspur and an assumed maximum sulphur content of 15 parts per million by weight (ppmw) in diesel.

C.4.4 Greenhouse Gas (GHG) Emissions

The Project is expected to negligibly decrease emissions for the total GHG emissions in Alberta and Canada, respectively, when compared to the 2022 reported emissions. This decrease correspond to an estimated 12 CO_2 equivalent kilotonnes per year of emissions due to a decrease in diesel consumption for mine equipment with slightly overall haul distances. Overall, this impact is considered negligible.

Coalspur recognizes Canada’s goal for net-zero emissions by 2050 as well as Canada’s current target under the Paris Agreement to reduce GHG emissions by 30% below 2055 levels by the year 2030. The Vista Mine currently incorporates GHG emission reduction strategies that aim to reduce and minimize the different emission sources that exist within and that are associated with the mining operations. These opportunities include the consideration and use of best available technologies (BATs) and best environmental practices (BEPs) for reducing GHG emissions, including emissions from the Phase II Project.

Coal produced at the Vista Mine is closer to the Asia-Pacific markets than other coal suppliers, reducing GHG emissions emitted during transportation. Unit-train movements to transport coal from the Vista Mine are among the lowest carbon intense in the world and are half the rail distance to Canadian ports than that of the U.S. coal that is exported via Western Canada. Vista coal is loaded into vessels that are among the largest bulk carriers in the world, further reducing the carbon intensity.

C.4.5 Emissions Mitigation

Coalspur has mitigated air pollution impacts by applying several tactics. These existing implementations will continue to be implemented throughout the Phase II operations. The primary sources of $PM_{2.5}$, PM_{10}, and TSP emissions are dust from haul road activity and material handling. Coalspur has introduced numerous mitigative measures to reduce the particulate emissions along their private haul roads and for pit activities. All of these measures were incorporated into emission estimation and dispersion modeling:

- The mine fleet is regularly upgraded to ensure equipment is as efficient as possible in emission estimation.
- Water from mine wastewater ponds is systematically applied to haul roads and to the plant access road to minimize dust using a water truck dedicated to this purpose. This method has been successful in dust suppression with the current mining operations of the Vista Mine.
- Snow cover is retained on the road as a mitigative measure during the winter months unless the cover would compromise the safety of vehicle operations. Winter ground is frozen and since the soil and overburden have elevated moisture contents, there is a significant reduction of dust emissions at that time.
- Gravel or crushed rock is used on the haul roads. Gravel is observed to produce less dust than clay and sandy surfaces.
- A grader is used to maintain the active surface of the road. This procedure is expected to reduce the effective silt content of the portion of the road where the wheels of the haul trucks travel. The grader blade would tend to move the silt particles to the inactive portion (side) of the road.
- The mined areas are reclaimed promptly and backfilled with overburden, capped with soil and then revegetated, which reduces windblown fugitive dust emissions as compared to barren land.
- Forest cover will be preserved around mines and plant, effectively trapping dust emissions from mining activities and reducing dust concentrations further away from mining activities.

C.4.6 Emissions Monitoring

Coalspur is currently a member of the West Central Airshed Society (WCAS). Additionally, ongoing monitoring programs will also be expanded to include Phase II. These monitoring programs include:

- A weather station that measure and track meteorology parameters;
- NO_X Emissions Minimization Plan for Mine mobile equipment; and
- GHG Monitoring and continuous improvement.

C.5 Vista Mine Activities and Infrastructure

C.5.1 Drilling and Blasting

Drilling and blasting operations will be conducted as per the Mine's current operating procedures for Phase I. Blasting will occur during the day shift only, with approximately two to four blasts per week. Drilling will be completed by CAT MD 6250 drills with 270mm (10.625") with a maximum depth of 40 m. These drills will be used for all drilling for blasting operations.

The blasting operation can be broken down into three categories: prestrip, cast, and interburden. Prestrip blasting involves shooting overburden to be mined with truck/shovel operations. In the deeper areas of the mine, there may be multiple prestrip shots per pit. These blasts are typically 20-30 m in depth and are shot at a relatively low powder factor. Cast blasting will occur in the North and West pits prior to the V7 seam. The blasts will typically be 25-35m deep, and the goal is to "cast" material from the current pit into the previously mined pit, eliminating the need to mechanically handle that material. Interburden typically ranges from 1-8 m deep; interburden less than 1 m deep will be ripped by dozers.

C.5.1.1 Explosives and Communications

Coalspur uses a third-party service provider for all of its blasting supply needs. The service provider is responsible for all manufacturing and delivery to service Coalspur's mining blasting operations. A storage facility is currently approved under NRCAN factory license F1-100555/E and is co-located with NRCAN magazine license U300312/E as part of the Phase I operations. There is no plan to construct any additional explosives manufacturing or storage facilities; the current facility may be moved more central to operations.

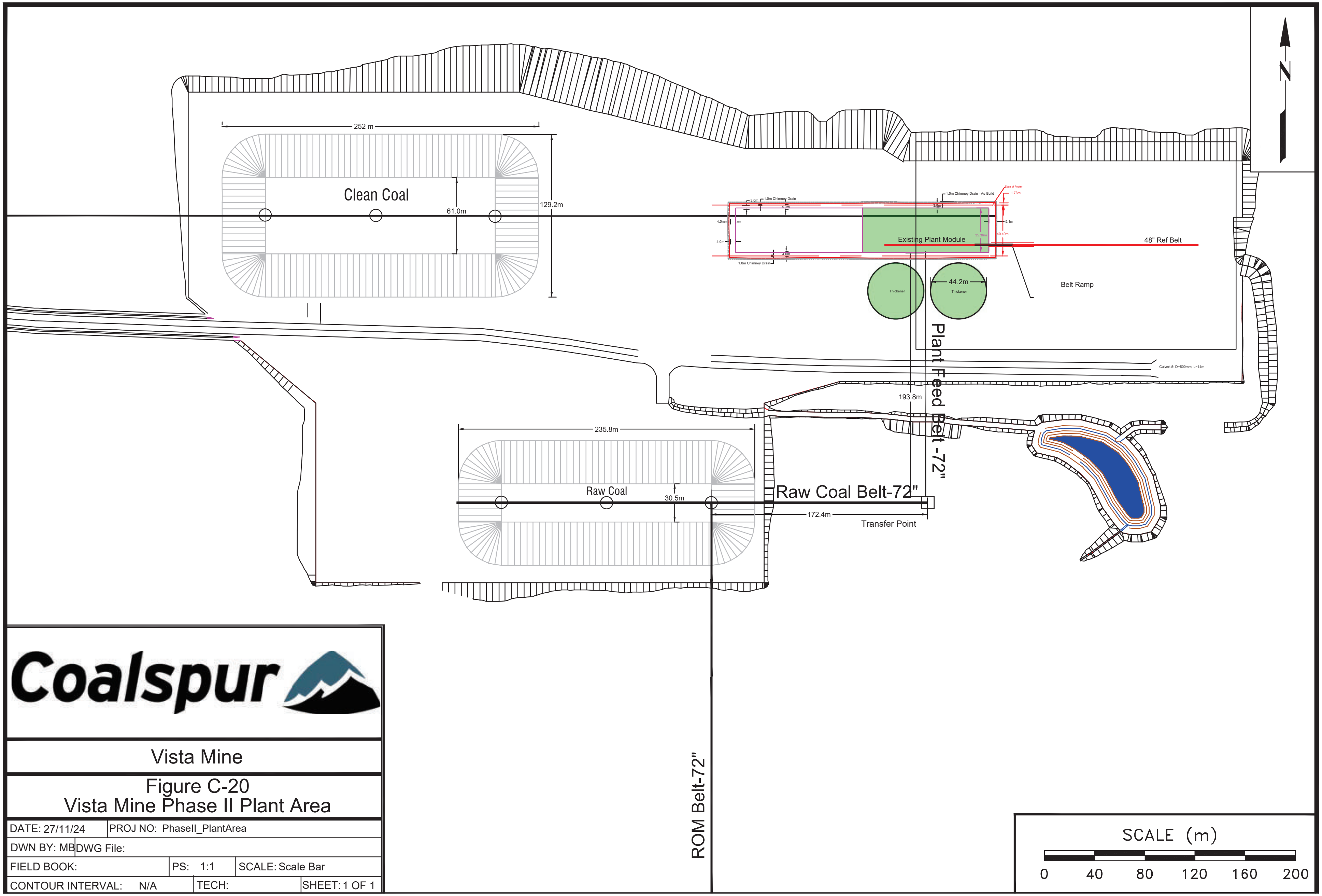
C.5.2 Service Bays (Fuel and Lube)

Fuel and lube facilities are located at various points throughout the Phase I mine area. From time to time these facilities are relocated as activities and operations advance to new mine areas. These 'service islands' will assist in operational efficiency by keeping fuel and lube supplies available to the large mobile equipment and readily accessible to haul truck routes.

At these sites, mobile equipment is provided with diesel fuel, engine coolants and lubricants. The satellite stations reduce the need to send equipment all the way to the main filling depot, resulting in time and energy savings as well as emissions reduction. All fuel depots have secondary containment berms around the storage tanks, and site drainage is managed. Regular use and maintenance of these depots ensures that spillage and leakage are minimized. Depots are located close to active mining areas along the main haul roads and mainly service haul trucks. Other than haul trucks most equipment is serviced from fuel/lube trucks. Additional Depots will be included as part of the mining operations when both Phase I and Phase II will be running concurrently.

C.5.3 Modifications to Raw Coal Handling and Preparation Plant

The Phase II mining operation will utilize the current plant infrastructure, which has been processing coal from the Phase I operation since 2019. The processing plant currently operates as two independent modules and has a maximum combined annual processing capacity of 11.8 million clean tonnes. With the proposed Phase II Project, the Vista Mine will have the potential to produce up to a maximum of 8 million tonnes of clean coal for its first year of production (2026), and a maximum of 6.8 million tonnes of clean coal per year thereafter. The processing plant was constructed while considering potential future mining, there are no modifications required for the additional coal production associated with the Phase II Project. The Coal Processing Plant diagram is shown on Figure C-20.



Coalspur

Vista Mine

Figure C-20
Vista Mine Phase II Plant Area

DATE: 27/11/24	PROJ NO: PhaseII_PlantArea		
DWN BY: MB	DWG File:		
FIELD BOOK:	PS: 1:1	SCALE: Scale Bar	
CONTOUR INTERVAL: N/A	TECH:	SHEET: 1 OF 1	

Raw coal is hauled from the pit to the ROM dump in rear dump trucks and tipped into a hopper and through a slotted static grizzly. An apron feeder and a primary sizer will size the ROM coal from the dump hopper and then discharge it onto a conveyor for transfer onto the secondary sizing station. A scale on the conveyor controls the speed of the feeder. The raw coal is then fed onto the 1.7-km-long ROM conveyor. It is stockpiled at the end of that belt and then fed via a reclaim tunnel to the plant-feed conveyor. The coal passes a tramp iron magnet before entering the plant-feed surge bin, then conveyed (passing a scale) to raw coal screens, then slurried and pumped to a rotary distributor and onto the deslime screens. Minus 50 mm material from the raw coal screens is separated out and combined with magnetite before re-entering the process. From the deslime screens, the material moves to the heavy media cyclones, which separate the coal product from the initial refuse product. The clean coal product moves through D&R screens or directly to the clean coal centrifuges. Fine material has magnetite reclaimed before final processing. The cleaned coal moves through centrifuges and/or cyclones to be dried to final specification before being conveyed to the outside clean coal stockpile. The coarse refuse lands on a belt; fine refuse enters one of the two thickener cells for initial dewatering, and the underflow is pumped to the active tailings cell, where all possible decant water is recycled for processing. All water recovered from these processes is fed back into the plant for re-use.

Outside clean coal storage remains at the currently approved location west of the CPP. A reclaim tunnel underneath the storage site moves the coal onto the overland conveyor, which carries it 6.5 km to the clean coal dome, located ~400 m east of Highway 16. The conveyor design is consistent with the currently approved design, which includes a covered top and side shields for safety and effective dust abatement. The dome has a capacity of 32,000 tonnes. The reclaim tunnel under the dome moves the coal onto the loadout conveyor across Highway 16 to the loadout structure straddling the rail siding. A surge bin at the top of the loadout drops the coal into rail cars via a drop chute to limit dusting. As coal is released into the cars, the top of each filled car is sprayed with a sealant for dust control during transport to port.

The current phase I operation as it presently functions is mining limited, meaning that the processing plant is capable of processing more coal than the mine is supplying. The CPP provides enough capacity to process the increased production. The CPP, material handling infrastructure for transporting raw coal, clean coal, coarse, and fine refuse do not require any modifications to accommodate Phase II.

No changes or modifications to the wash plant are anticipated outside of increased water and chemical usage to match the increase in plant capacity. This wash plant has proven its ability to successfully process the Val D'Or, McPherson, and McLeod coal seams. The Coal Processing Plant recovery averages 54.2%. The Arbour seam is the only coal seam included in the Phase II mine plan that is not currently mined or processed in Phase I. The Arbour seam makes up approximately 7.9% of the Phase II reserve. Based on Phase I processing experience and the Arbour seam's similarity to the McLeod seam, Coalspur believes that the wash plant will be successful in handling the Arbour seam.

C.5.4 Coarse Rejects Handling

A conveyor collects the coarse refuse material (the coarse noncoal waste such as rock) from the wash plant and transports the material to the North Dump, within the Phase I mining area north of the Val D'Or pit (Figure C-1) for disposal and capping. The additional coal production associated with Phase II of the

Mine is anticipated to increase coarse reject volumes within the North Dump by approximately 14.6 million cubic meters. The North Dump's originally approved disturbance footprint was 607 ha (Coalspur, 2011). Through various amendments, the North Dump footprint was reduced to what is currently approved as 126 ha. The additional coarse reject associated with the Phase II project will add approximately 17 ha to the North Dump footprint, for an overall updated footprint of 143 ha. The increased footprint remains within the current dump licence boundary. Modifications to the North Dump design is required to accommodate the additional volumes of coarse refuse.

A geotechnical stability analysis was conducted by Barr Engineering and Environmental Science to ensure the updated design conforms to the factor of safety for stability. As part of the analysis, geometric modifications to the coarse refuse pile for the Project were evaluated. The revised geometry maintains the maximum elevation of 410 meters above sea level (masl), and increase the maximum height to approximately 90 meters, consisting of five benches. The updated design features inter-bench side slopes with a gradient of 2.5H:1V, compared to the previous configuration of 3H:1V, resulting in an overall slope of 2.8H:1V. The results of the updated stability analysis demonstrate that all factor of safety (FOS) values meet or exceed the minimum requirements. Additionally, ongoing testing of refuse materials indicates that the actual strength parameters of the material are significantly higher than the conservative design values, suggesting that the actual FOS values are likely greater than those reported. The analysis reaffirms the geotechnical stability of the proposed configuration changes. The geotechnical stability analysis is provided in Appendix B3 – Geotechnical Assessments.

Materials handling and balance is discussed in further detail in Section C.3.5. The nominal material balance for one plant module is provided in Table C-9.

Table C-9 Nominal Material Balance

Plant Stream	Module 1 tph
Feed	1.00
Product	0.55
Fine Reject (Tailings)	0.16
Course Reject	0.29

Tph-tonnes per hour

C.5.5 Fine Refuse Process

Processing coal produces a tailings slurry that is a mix of coal, rock, and water. Plant refuse material is transported to the active tailings cell as a slurry through an HDPE pipeline. Activation of the sequential tailings cell will occur once full capacity has been reached in the previous cell. Plant refuse will only be placed in one cell at any given time. Flocculant is injected directly into the slurry line by an automatic dry polymer mixing system. As the tailings cell fills and the solids settle, recyclable water will be pumped back and reused in the CPP. Within the Phase II disturbance area, South Pits 1, 2, and 3 are intended to be used as tailings cells, similar to the currently approved process within Phase I. The expected tailings deposition and capping schedule is provided in Table C-10.

Table C-10 Expected Tailings Deposition

Phase II Expected Tailings Deposition				
Tailings Cell	**Available Storage Capacity (m^3)**	**Start Filling Date**	**Reach Capacity**	**Capping**
McPherson Tailings Cell 4,3	-	6/1/2024	2/6/2025	2/6/2029
McPherson Tailings Cell 5	-	2/6/2025	9/24/2025	9/24/2030
McPherson Tailings Cell 6	1,269,119	9/24/2025	6/23/2026	6/22/2031
McPherson Tailings Cell 7	2,296,497	6/23/2026	4/4/2027	4/3/2032
McPherson Tailings Cell 8	3,928,372	4/4/2027	2/2/2029	2/2/2033
McPherson Tailings Cell 9	5,175,328	4/8/2033	8/29/2036	12/29/2036
South Pit 1 Cell	6,595,807	2/2/2029	4/8/2033	4/8/2034
South Pit 2 Cell	5,438,847	8/29/2036	*2,782,145 CM Remain*	
South Pit 3 Cell	1,836,660		*1,836,660 CM Remain*	

The estimated Phase II tailings generation rates and tailings volumes requiring storage were determined by conducting a feasibility analysis on the Phases I and II required storage capacity against the Phases I and II tailings storage capacity. Based on the current understanding of the available resource, quality of the resource, and processing, the expected volume of tailings is estimated to be 14,126,000 m^3. From the sensitivity analysis, the minimum required Phase II tailings storage is 7,925,826 m^3 and the maximum is 18,753,216 m^3.

C.5.5.1 Tailings Generation Sensitivity Analysis

Coalspur has conducted a sensitivity analysis to compare the tailings storage capacity in both Phase I and Phase II against the combined tailings generation from Phase I and Phase II. For this sensitivity analysis, we have provided definitions for some key terms as they are used in the sensitivity analysis.

- Tailings Slurry
  - The total volume of tailings water and solids. This is the volume that comes out of the thickener underflow.
- Tailings Deposition (Tailings)
  - The volume of solids and unrecovered water deposited as tailings.
- Water Recovery
  - The volume of water that is recovered (recycled) from the tailings cell over the course of active deposition. Does not include water that is liberated from the tailings while the cell is inactive or undergoing capping.
- Percent Solids
  - The percentage of solids, by weight, that is present in the tailings slurry.

A sensitivity analysis was conducted for this based on the estimated coal resource for each coal member and under different extraction operation, and normal and upper range of variables affecting produced tailings. For this analysis the variables affecting the volume of tailings produced are:

- The volume of slurry produced per raw tonne processed at the coal processing plant;
- The percentage of solid particles present in the slurry; and
- The amount of water recycled from the tailings cell.

Since the coal quality sampling completed in Phase II shows the coal to be very similar to the coal sampled and mined in Phase I, the ranges for each variable considered come from laboratory testing and actual McPherson cell measurements. This provides the best possible information for analysis of tailings produced by Phase II.

Table C-11 shows the estimated raw coal resource based on each coal member for Phase I and Phase II. Table C-12 provides information of available tailings storage capacity for each of the tailings storage cells. Based on Table C-12, a total of 26,540,630 m^3 of total tailings storage capacity will be available at the beginning of Phase II for both Phase I and Phase II operations.

Regarding the Arbour seam, the only seam not currently mined in the Phase I operation. The Arbour seam consist of the small portion of overall coal production for Phase II accounting for 8% of Phase II production and 5% of Phase I and Phase II production. Therefore, sensitivity of the operation to quality of Arbour seam is minimal. Based on the available testing data from Phase II, the quality of coal of McLeod, McPherson and Val d'Or seams are in same range as what has been produced in Phase I (as expected based on the proximity). Arbour seam testing showed that the coal quality is similar to the McLeod seam and therefore, it is expected to produce tailings at a similar rate.

Table C-11 Combined Raw Coal Reserves Beginning of Phase II

Operation	Tonnes				
	Val d'Or	Arbour	McLeod	McPherson	Total
Phase 1					
Surface Mined Raw Coal	24,010,418		520,762	3,391,192	27,922,372
Highwall Miner Raw Coal	8,212,210		1,559,368	1,831,172	11,602,750
Vista Test Underground Mine Raw Coal	3,379,999				3,379,999
Total Phase I Raw Coal	**35,602,627**	**-**	**2,080,130**	**5,222,364**	**42,905,121**
Phase 2					
Surface Mined Raw Coal	37,040,098	6,358,494	3,224,264	16,213,050	62,835,906
Highwall Miner Raw Coal	9,099,281	-	2,249,962	4,081,180	15,430,423
Total Phase II Raw Coal	**46,139,379**	**6,358,494**	**5,474,226**	**20,294,230**	**78,266,329**

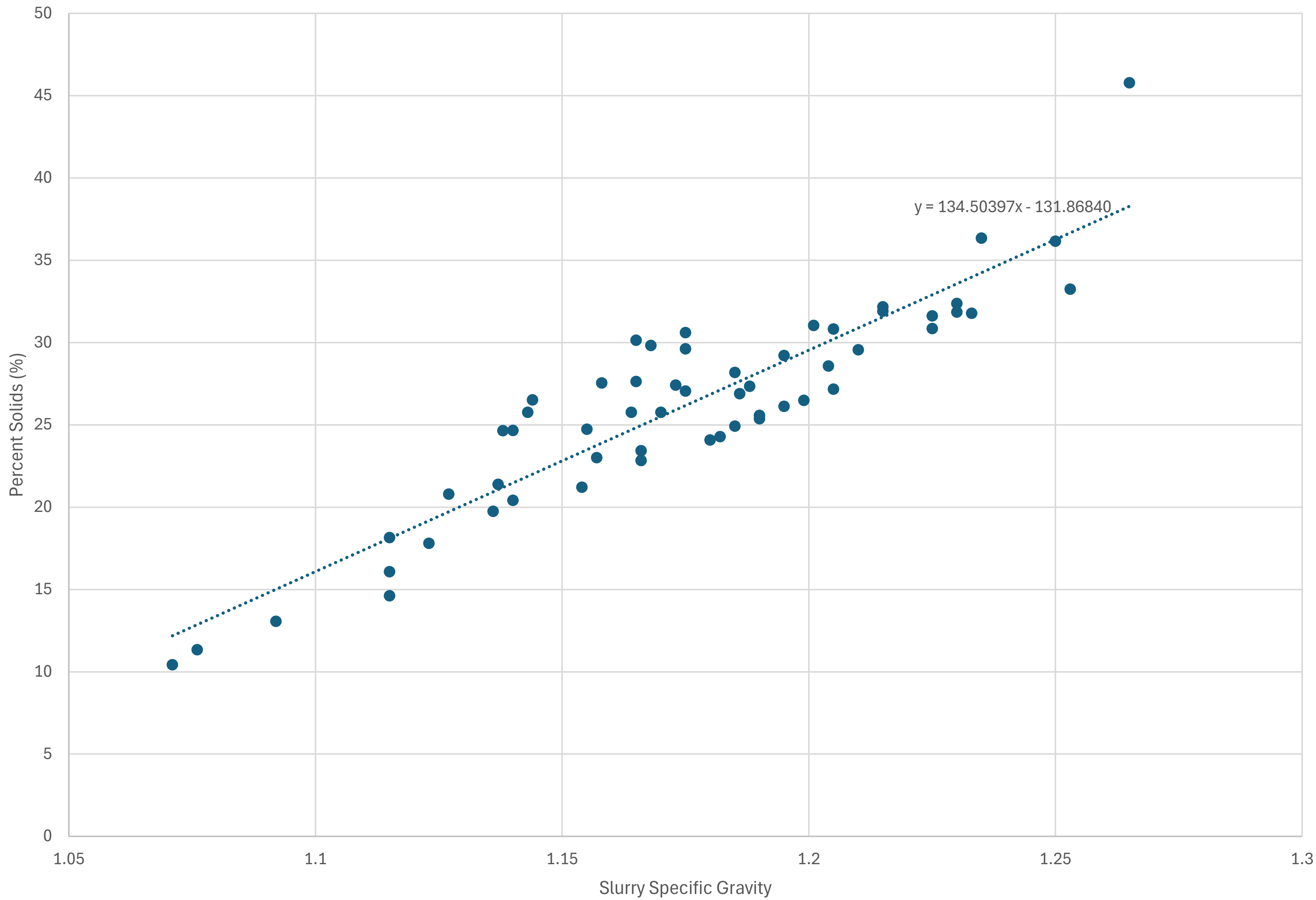
Table C-12 Remaining Tailings Storage Capacity Beginning of Phase II

Beginning of Phase II - 2026	
Remaining Tailings Storage Capacity (m^3)	
Cell 6	1,269,119
Cell 7	2,296,497
Cell 8	3,928,372
Cell 9	5,175,328
SP1	6,595,807
SP2	5,438,847
SP3	1,836,660
Total (m^3)	**26,540,630**

From former testing programs, Coalspur has found that the coal in the Phase II area is very similar to the coal in the Phase I area with respect to the raw coal ash and fine content. The interbedded rock volumes expected to be processed by the CPP is determined more by mining method than geologic data, however, boreholes show the partings between coal are similar to the coal that has been encountered in the Phase I mining area. The mining method is the same for Phase II as Phase I. Because the mining method is the same for Phase II as Phase I, testing of Phase II coal is so similar to Phase I, and the availability of information of the actual tailings generation from the CPP, this information was selected to be the basis for this sensitivity analysis. Below is a list of assumptions:

- The found relationship between percent solid in the slurry and slurry density remains the same. This is presented in Figure C-21;
- Water recovery is the water recovered from the cell during active deposition;
- Tailings cells are not filled more than once; and
- There is no mining loss, which would result in a reduction in tailings production.

Figure C-21 Percent Solids versus Slurry Specific Gravity



The volume of tailings produced is determined by finding the total volume of tailings slurry (total fines and water) produced, then determining the total volume of fines and water in the tailings slurry and finally subtracting the recycled water to find the total amount of fines and unrecovered water deposited. For each variable an upper, middle and lower bound was selected. Then each combination of potential outcomes is calculated.

For the volume of slurry produced per raw tonne of coal processed, a lower bound of 10.09% and an upper bound of 13.95% was used. These were determined based on measurements from the CPP, the tailings volume based on flow meter measurements, and the raw tonnes processed based on belt scale measurements. Outliers in the data were removed, and the upper and lower bounds were determined as being the average plus or minus the standard deviation in the data. The percentage of solids in the slurry was determined in the same manner as above, with a lower bound of 19.94% and an upper bound of 32.40%

For the water recovery a conservative approach was used. Laboratory testing on the tailings found that 70% of water is freed from the tailings within 24 hours of deposition. Based on this information and measurements from cell 1 actual deposition, an upper bound of 72% water recovery was selected. Based on measurements from the McPherson tailings cells where the worst period of water recovery was experienced, a lower bound of 58% was selected. The water recovery used in this analysis is the percentage of water deposited in the cell that is recovered while the cell is in active deposition. Total water recovery is expected to be higher as additional water is recovered while the cell is inactive and during capping. Table C-13 shows the values used in this analysis.

Table C-13 Sensitivity Analysis Input Variables

Scenario	Water Recovery	Slurry Volume per Raw Tonne	Percent solid
Low	58.0%	0.325	19.94%
Medium	65.0%	0.431	26.17%
High	72.0%	0.538	32.40%

In the McPherson tailings cell applications, tailings generation has been referred to as a volume of slurry produced per clean tonne of coal processed. CPP production is commonly measured by the amount of clean coal, therefore the clean coal tonnage has been used for describing tailings generation rates. This can potentially be misleading, as it may imply that a higher clean recovery from the plant would result in an increase in tailings generation, when the opposite is true. Coalspur will continue to present tailings generation rates as a volume per clean tonne of coal processed as it is useful to compare with previous applications and measurements from the existing McPherson Tailings cells. In this sensitivity analysis the minimum rate of tailings generation was found to be $0.217 m^3$/clean tonne and the maximum is $0.523 m^3$/clean tonne.

Table C-14 shows the results of the sensitivity analysis, a total of 28 scenarios were considered for the sensitivity analysis. Of the 28 scenarios there is adequate or spare capacity in 19 (68%) of the scenarios and there is inadequate capacity in 9 (32%) of the scenarios.

Table C-14 Tailings Generation Sensitivity Analysis Results

Water Recovered from Tailings	Tailings m^3 / Raw Tonne Processed	Percent Solid in Slurry	Tailings Generated	Remaining Storage
Low	Low	Low	19,241,054	7,299,576
Low	Low	Mid	20,045,874	6,494,756
Low	Low	High	20,979,311	5,561,319
Low	Mid	Low	25,538,712	1,001,918
Low	Mid	Mid	26,606,952	(66,322)
Low	Mid	High	27,845,906	(1,305,276)
Low	High	Low	31,836,370	(5,295,740)
Low	High	Mid	33,168,030	(6,627,400)
Low	High	High	34,712,500	(8,171,870)
Mid	Low	Low	16,811,428	9,729,202
Mid	Low	Mid	17,713,381	8,827,249
Mid	Low	High	18,759,474	7,781,156
Mid	Mid	Low	22,313,861	4,226,769
Mid	Mid	Mid	23,511,027	3,029,603
Mid	Mid	High	24,899,509	1,641,121
Mid	High	Low	27,816,294	(1,275,664)
Mid	High	Mid	29,308,672	(2,768,042)
Mid	High	High	31,039,545	(4,498,915)
High	Low	Low	14,381,801	12,158,829
High	Low	Mid	15,380,888	11,159,742
High	Low	High	16,539,638	10,000,992
High	Mid	Low	19,089,010	7,451,620
High	Mid	Mid	20,415,101	6,125,529
High	Mid	High	21,953,113	4,587,517
High	High	Low	23,796,219	2,744,411
High	High	Mid	25,449,315	1,091,315
High	High	High	27,366,589	(825,959)
Average			**23,574,799**	**2,653,852**

*Negative remaining storage

With respect to tailings generated by Phase II specifically, the expected volume of tailings generated from Phase II is ~14,126,000 m^3. From the sensitivity analysis, the minimum required Phase II tailings storage is 7,925,826m^3 and the maximum is 18,753,216m^3.

This sensitivity analysis provides a wide range of scenarios for total tailings generation, including rates of tailings generation that are much higher and lower than what has been indicated from laboratory testing and observed during McPherson Tailings cell operation. The tailings production at the Vista mine operation is closely monitored, if the actual tailings deposition is projecting to be above the total storage remaining then several mitigation methods can be employed to maximize deposition volumes. Mitigation methods include:

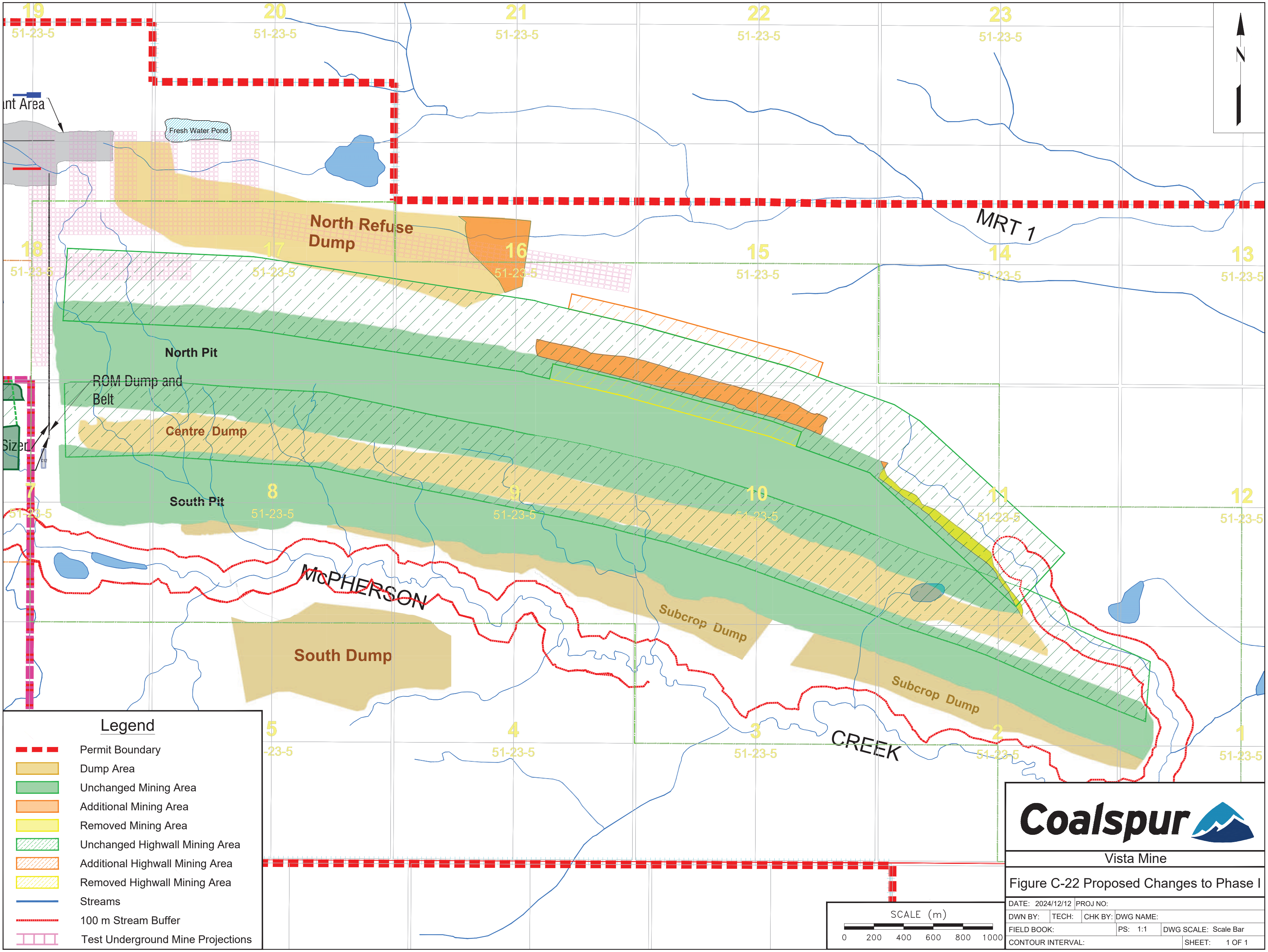
- Refilling Tailings Cells after initial deposition.
    - The McPherson tailings cells have demonstrated that significant consolidation of the solid material in the cell occurs after deposition has ended. After consolidation has occurred these cells can be refilled to maximize available storage capacity. Coalspur has started adopting this procedure as a best practice to maximize available storage capacity.
- Reducing the rate of CPP processing to improve consolidation and water recovery during active deposition.
- Treating and releasing liberated tailings water to provide more of the tailings storage space for tailings.
    - Would be employed as an option if necessary, in the later years of operation, when the tailings affected water is no longer required for further coal processing.

In the majority of cases analyzed in this sensitivity analysis, including the expected case, there is adequate tailings storage available for the Phase I and Phase II projects. If actual tailings generation rates are found to be at a rate at which insufficient tailings storage is available, then mitigation measures will be employed to ensure adequate capacity.

C.5.6 Refinements to the Phase I Mine Plan

In addition to the refinements of the Phase I area in relation to the Phase II Project, Coalspur is proposing some refinements to the currently approved Phase I Mine Plan. These refinements are described below, which take into consideration the interrelation between Phase I and Phase II. This section is provided as part of the AER’s integrated approach for amendment applications.

Coalspur is proposing to expand a portion of the Val d’Or pit further northeast and refine the east boundary. This will increase the surface area of the Val ’Or pit by 24.7 hectares (ha). The proposed revisions to the Val d’Or pit will shift highwall mining further north however highwall mining will be conducted similarly as approved. Figure C-22 provides an overview of the proposed changes, comparatively to the currently approved Val d’Or pit. The proposed changes to the mine plan will economically extract additional volumes of resources available in order to maintain resource recovery for the duration of the Phase I mining operation.



19
51-23-5
20
51-23-5
21
51-23-5
22
51-23-5
23
51-23-5
N
Fresh Water Pond
North Refuse Dump
MRT 1
18
51-23-5
17
51-23-5
16
51-23-5
15
51-23-5
14
51-23-5
13
51-23-5
North Pit
ROM Dump and Belt
Centre Dump
South Pit
7
51-23-5
8
51-23-5
9
51-23-5
10
51-23-5
11
51-23-5
12
51-23-5
McPHERSON
CREEK
Subcrop Dump
Subcrop Dump
South Dump
5
-23-5
4
51-23-5
3
51-23-5
2
51-23-5
1
51-23-5
Legend
Permit Boundary
Dump Area
Unchanged Mining Area
Additional Mining Area
Removed Mining Area
Unchanged Highwall Mining Area
Additional Highwall Mining Area
Removed Highwall Mining Area
Streams
100 m Stream Buffer
Test Underground Mine Projections
SCALE (m)
0 200 400 600 800 1000
Coalspur
Vista Mine
Figure C-22 Proposed Changes to Phase I
DATE: 2024/12/12
PROJ NO:
DWN BY:
TECH:
CHK BY:
DWG NAME:
FIELD BOOK:
PS: 1:1
DWG SCALE: Scale Bar
CONTOUR INTERVAL:
SHEET: 1 OF 1

C.5.6.1 Changes to the Mine Plan

These revisions consists of the addition of three new mining cuts to the Val D'Or panels V8, V9, and V10 within the Val D'Or pit. The proposed revision also includes refinement to the final pit wall along the east boundary of the Val D'Or pit. The changes to the final pitwalls of the Val D'Or panels V11, V12, and V13 are to straighten the final pitwall as the currently approved plan follows along the MCT 2 100m buffer, resulting in a jagged final pitwall. The overall result of the proposed changes to the Val D'Or pit shape is an increase in surface area disturbance along the north boundary and a reduction in surface area disturbance along the east boundary, totalling an increase of surface disturbance of 24.7 ha. All activities will remain within the currently approved Mineral Surface Lease (MSL) and Mine Permit boundaries.

C.5.6.2 Changes to Coal Reserves and Material Handling

The proposed revisions to the Val d'Or pit will shift a portion of the final highwall and highwall mining further north. Highwall mining will be conducted similarly as approved however due to the geology of the new location, the coal model indicates a slightly thicker coal seam within the new area, slightly increasing the highwall mining reserves. A geotechnical assessment was completed on the new highwall mining location to ensure safety ratings are appropriate. The geotechnical assessment is provided in Appendix B4 – Geotechnical Assessments. The proposed changes to the mine plan will economically extract additional volumes of resources available therefore improve resource recovery for the Phase I current operation. The overall increase to the Vista Mine reserves will be approximately 1,832,843 tonnes of clean coal and the overall increase in waste material will be approximately 26,248,097 bcm. These revisions have been incorporated in the overall material balance as per Table C-8.

C.5.6.3 Changes to the Water Management Plan

Water intersected by the Val D'Or pit is currently designed to flow north-to-south. Surface water is managed by a series of ditches and sedimentation ponds. Pond R2, as currently approved, is responsible for the management of this drainage area. Changes to the Val D'Or mine sequencing, and well as changes to material movement and handling, will result in a redirection of surface flow within this drainage area west-to-east on the east boundary of the Val D'Or pit. A pre-settling pond is proposed to be constructed upstream of Pond R2. Pond R2 will function as currently designed and there will be no additional release points. The pre-settling pond will support the increase in surface disturbance associated with the additional 3 Val D'Or cuts within this watershed area. Appendix C2(b) – Water Management Plan, provides the details associated with the addition of the pre-settling pond.

C.5.6.4 Changes to the Reclamation Plan

The proposed Phase I mine plan changes, in correlation with the Phase II material management, balance, and allocation (handling), will result in a shift in the location of the development of the end-pit wetland complex currently approved as part of Phase I Progressive Reclamation Plan, subsequently revisions to the reclaimed water management plan. Further details are provided in Section F.5 of Part F – Conservation and Reclamation Plan.

C.5.6.5 Summary of Refinements to the Phase I Mine Plan

Table C-15 provides a summary of the Phase I mine plan and discusses the rationale to the proposed changes.

Table C-15 Summary, Timing, and Application of Large Equipment

Type of Activity	Proposed Revision	Rationale
Mine Pit Surface Area	The Val D'Or Pit is proposed to be increased to 502.9 ha of total surface area disturbance	Increase coal reserves
Mine Pit Surface Area	Proposing to bring in the east boundary of the Val D'Or Pit and straightening the boundaries. This will reduce surface disturbance and coal reserves.	The proposed change to the east boundary will make it more operationally feasible. The revision will improve the mining operation in the area. *The combination of the proposed changes to the north boundary and east boundary of the Val D'Or Pit will overall increase the total surface area of the Pit.
Mine Pit Surface Area	The proposed new location for highwall mining remains in NW&NE-9-51-23-W5, NE-10-51-23-W5, SW&SE-15-51-23-W5 and SE-16-51-23-W5	The increased surface area towards the north of the Val D'Or Pit will extend the pit wall further north, therefore changing the highwall mining location further north.
Mining Reserves	The additional 3 new Val D'Or cuts a revision to eastern portion of the Val D'Or highwall will result in an increase of 1,832,843 tonnes of clean coal.	There will still be an overall increase in reserves, even with the proposed changes to the east boundary of the Pit.
Highwall mining & Geotech	The Val D'Or Pit final wall to be 158m deep	Because we are going further north the dip of the coal seam and natural topography result in a deeper final highwall. A geotechnical assessment was completed to ensure the safety factors are appropriate (Appendix B4).
Coal Processing Plant	Anticipate that the new production is 5.5 million clean tonnes per year.	Annual production year will increase but not the max production year which is what most calculations are based on.
Coal Processing Plant	The proposed coal processing reserves will increase tailings vol. by approximately 604,838 m^3	This is a direct result of the increase in coal processing due to the increase in coal reserves.

Type of Activity	Proposed Revision	Rationale
Coal Processing Plant	The proposed coal processing volumes will increase coarse refuse vol. by approximately 644,207 m^3.	This is a direct result of the increase in coal processing due to the increase in coal reserves.
Waste Handling & Material Balance	The additional cuts in the Val D'Or Pits will result in an increase of approximately 28,456,497 bcm of waste material. The revision of the eastern final highwall results in a decrease of 2,208,400 bcm. Overall increase of 26,248,097 bcm.	The increased material will be used as back fill and not requiring additional space or vol in the waste dumps.
Waste Handling & Material Balance	Mine sequencing and material placement and allocation will result in a final open pit in panels 8-10 that will be reclaimed as an end-pit wetland complex.	The final closure plan of the final open pit remains similar to the currently approved plan within the Phase I Progressive Reclamation Plan. The location of the end-pit wetland complex is slightly shifted to the north in comparison to the currently approved Plan.
Water Management	A pre-settling pond is proposed to be constructed upstream of R2 pond (R2 pre-settling pond). R2 pond itself will function and will be constructed as designed and as approved. The proposed change is the addition of R2 pre-settling cell/pond.	The change in water management will result in an approximately 58 ha increase to the drainage area of the R2 pond. and An additional settling cell within the mining backfill associated with pond R2 will be required (Appendix C1(b)).
Reclamation -Water Management	The current post mining water management design provides reclaimed riparian features that will re-establish post-mining drainage areas towards their allocated reclaimed pond structures South of the mine along McPherson Creek. The proposed changes to the reclaimed water management design will increase surface water flowing West to East prior to entering McPherson Creek.	Amendments to the reclaimed water management design are due to the changes in the final landform topography as a result of the shift in mine sequencing and the progressiveness of reclamation (sequencing of backfill activities).
Reclamation -Water Management and Landform Design	Val d'Or pit mine sequencing will end in panels V8-10 instead of panels V11-13, therefore shifting the final landform topography, and its proposed reclaimed wetlands areas. With the addition of the Phase II Project, the final pit will no longer be in the Phase I Val d'Or Pit but rather in the Phase II West Pit.	Phase II is a continuation of the Vista Mine's mining operations. As mining comes to an end in the Phase I area, operations will progress to the Phase II area. The final pit at the Vista Mine is expected to be the West Pit, in the Phase II area, which will be reclaimed as an end-pit lake.

C.6 Roads

C.6.1 Mine Main Access Corridor

The main access to the mine is a paved road that was constructed as part of the Phase I development. It runs from Highway 16, generally following the alignment of the clean coal overland conveyor, to the main Mine Office building and Coal Processing Plant (Figure C-1). This two-lane road is approximately 10 metres wide (including shoulder allowance) and is designed to accommodate highway trucks. This access was chosen following a public information process and further discussions with representatives of West Yellowhead County and officials with Alberta Transportation.

C.6.1.1 Highway 16 Traffic Impacts

The primary vehicular access for the mine site and rail load-out facility will be via Highway 16. Coalspur completed a Traffic Impact Assessment (TIA) in support of the proposed Phase II expansion of the existing mine (Addoz, 2024). The Vista Mine Access Road (the development access point) is located along Highway 16. There are no proposed changes to the main access to the Mine Site as part of the Phase II expansion. The TIA assesses the potential transportation impacts of the proposed expansion to satisfy Alberta Transportation and the Yellowhead County requirements. For full details on the TIA, please refer to Appendix C2 – Traffic Impact Assessment.

The primary purposes of the TIA are to evaluate the traffic operations at the major intersection, evaluate any potential project impacts on current roadways, evaluate intersection layout and suitability, and identify roadway improvements. Since the Vista Mine Phase II expansion is a continuation of current mining operations, no new trips will be generated as a result of the Phase II Project.

The intersection identified for the study was analyzed according to the methodologies presented in the 2022 Highway Capacity Manual (HCM 7th Edition). The study intersection of Highway 16 and Vista Mine Access would continue to operate at acceptable levels of service with the stop-sign controls under Opening 2026, Interim 2036, and Future 2046 traffic conditions. Both AM and PM peak hours would be operating at acceptable levels of service without any operational or safety concerns. Therefore, no mitigation would be needed under any of the analyzed background / post development traffic condition scenarios.

Traffic signal installation warrants were conducted for Highway 16 and Vista Mine Access study intersection for the 2046 Future traffic conditions. The purpose of the analysis was to determine if the installation of traffic signal control would be warranted by Future 2046 conditions. The traffic signal warrant analysis results for the study intersection of Highway 16 Vista Mine Access determined that the installation of traffic signal at this intersection would not be warranted under the 2046 Background / Future conditions. The traffic signal warrant analysis for the Background / Interim 2036 and the Background / Opening 2026 conditions were not conducted because the traffic volumes are much lower than 2046 volumes. Therefore, traffic signal installation would not be warranted under these two scenarios at the study intersection.

The Intersection layout analyses were conducted using the Alberta Transportation Geometric Design Guide for Highway 16 and Vista Mine Access intersection. Additionally, the Warrants for Exclusive Right Turn Lane analysis indicated that an exclusive right turn lane would be warranted on the eastbound direction of Highway 16 and Vista Mine Access under the 2046 traffic conditions. It should be noted that the existing intersection of Highway 16 and Vista Mine Access already has approximately 25-meter-long WB exclusive left-turn only lane and approximately 25-meterlong EB exclusive right-turn only lane. Therefore, no operational or safety issues would be expected at the study intersection under future conditions.

The purpose of the lighting warrants is to establish a consistent determination whether an intersection requires illumination and what type of lighting should be provided. Lighting installation warrants were performed using TAC's Guide for Design of Roadway Lighting. The lighting warrants were completed for the intersection of Highway 16 and Vista Mine Access for Opening 2026, Interim 2036 and Future 2046 conditions. Analysis results indicate that partial lighting of the intersection would be required under the three analyzed traffic conditions.

In summary, the TIA concludes that the proposed expansion of the Vista Mine will not increase the current level of traffic. The traffic analysis indicated that the study intersection would continue to operate at acceptable levels of service with ample capacities at all intersection approaches with no queuing issues. Therefore, no mitigation would be required under any of the background or post development traffic scenarios.

C.6.2 Haul Road Design and Watercourse Crossings

The primary method for transporting waste and coal is through the use of end dump haul trucks. The main waste haul truck will be the 227t class, with the primary coal mover to be the 186t class haul truck. With these trucks in mind, permanent haul roads were designed to a maximum ramp grade of 10%. Haul roads are to be constructed with a 40 m running surface, which equates to three times the width of the largest truck. Berms will be developed along the route at a height of at least 2.0 m. Construction materials for the road will be sourced from the pit and capped with gravel.

C.6.2.1 Watercourse Crossing

MCT13 is an unnamed tributary of McPherson Creek. As per the Phase II Aquatic Ecology Environmental Impact Assessment (CR # 6(a)), MCT13 was assessed as potential suitable fish habitat for the SARA-listed Athabasca Rainbow Trout; therefore, Coalspur has opted to avoid impacts on the potential fish-bearing tributary. MCT13 is the only watercourse that will require a crossing in the mine plan. MCT13 runs northwest-southeast, diagonally through the Project footprint. The crossing will be primarily used to access and haul from mining the West Pit and South Pit 3. Field investigations provided several suitable and environmentally safe crossing locations along MCT13. The selected location is shown in Figure C-18.

It is planned to install a clear span crossing similar to the crossing installed across the McPherson Creek in Phase I. The crossing will be constructed to free-span MCT13 to avoid any instream impact and so that all surface run-off from the haul road will be directed away from the crossing into impoundments constructed on both sides of MCT13. Coalspur will proactively engage with the Department of Fisheries and Oceans (DFO) to determine if the watercourse crossing design will require authorization.

C.6.2.2 Coal Haulage

There will be one main haul road for transporting coal to the primary crusher from the active pits. This haul road will extend to the west as mining progresses and will have secondary haul roads that branch off from the main haul road to provide access to the active pits. The planned full extent of the main haul road can be seen on Figure C-17. The permanent haul road is designed at the maximum grade of 10%.

The detail of how each pit will be accessed will depend on mining conditions at the time. Generally, the pits will be accessed from the southeast and will have multiple ramps constructed while mining is ongoing. Typically, one ramp will be utilized for overburden material, and another ramp will be used to access the lower portions of the pit for mining coal and interburden. Depending on the depth of the pit, fewer or additional ramps may be required to ensure the safe and efficient mining of the pits.

C.6.2.3 Waste Haulage

The primary method for waste haulage is truck/shovel operations. To minimize haul distances backfilling within mined out Phase II pits will be prioritized during Phase II mining operations. When there is not sufficient backfill space available within the Phase II mine area the waste rock mined by truck/shovel operations will be hauled to Phase I and used to backfill mined out pits there. The waste will be hauled along the same main access ramps as the coal. Backfilling in Phase II will progress as quickly as reasonably practicable to minimize haul distances and rehandling required to reclaim Phase II.

C.6.3 McPherson Road

McPherson road is the local name used for West Fraser's DLO3525 access road. This road is used by various stakeholders in the area. As mining progresses within the West Pit, mining activities will remove portions of the road in Year 3 (2028). Coalspur will ensure access within the Mine's MSL is maintained for active and operating stakeholders and will collaborate with its stakeholders to determine the most suitable and safest approach for directing and controlling traffic surrounding the active mining areas.

C.7 Water Management

Water management for the project has been assessed in terms of water supply, control, storage, and release. Surface and groundwater are both significant factors in the overall water management for the project and thus, an integrated approach to the management of both systems was adopted from the outset. Appendix C1(a)- Water Management Plan provides a detailed report summarizing the development of the Phase II surface water management plan.

C.7.1 Surface Water Management

The surface water management plan (SWMP) includes interceptor ditches to collect surface runoff from undisturbed areas and convey it back to the natural environment or to the plant water cycle (Appendix C1(a) - Water Management Plan). Surface runoff from disturbed areas will be collected in ditches, which flow to sedimentation ponds that make sure that water quality approval requirements are met prior to release to the environment. Dewatering pump and pipeline systems will transport water from collection points in the mine pits to the ditches. Some of the water collected in the sedimentation ponds will be pumped to the Coal Processing Plant for re-use. Water from the sedimentation ponds will be released or pumped to stream flow augmentation points. Due to the unavoidable loss of water through the washing process, raw water make-up will be required to offset the loss of water through the plant product and reject streams, in particular, the processed fines stream. The current sources of make-up water approved as part of the Mine's operations are listed below:

1. Surface – water from springs, high wall release, and net precipitation
2. Pit dewatering – water from deep pumping wells
3. Groundwater wells – water from deep pumping wells

The SWMP was developed to manage surface water runoff and convey it back to the environment or to the plant water cycle during the operational life of the mine. The primary principles for the development of the SWMP are:

- Runoff from disturbed areas and from overburden dumps is deemed to be of suitable quality to be released back into the environment subject to acceptable removal of suspended solids;
- Catchment diversions will be constructed where feasible to keep undisturbed area runoff separate from runoff from disturbed areas. This will minimize the amount of runoff collected by the disturbed area drainage system and reduce the size of the downstream runoff settling ponds required for the removal of suspended solids. Catchment diversions were also used to divert undisturbed area runoff away from the advancing mine pit;
- Where the project development reduces the catchment area of a fish-bearing stream or tributary, project water supplies will be used to augment streamflow as required during low flow periods; and
- Runoff settling ponds will be designed to be normally full to provide storage for streamflow augmentation.

The resulting SWMP for the mine consisted of the following key components:

- Surface water collector ditches for disturbed areas and diversion ditches for undisturbed areas;
- Runoff settling ponds and/or impoundments to settle suspended solids prior to releasing flows back to the environment; and
- Pump and pipeline systems to recycle water from the runoff settling ponds, tailings cell, and mine pit to the Coal Processing Plant.

The proposed surface water management infrastructure for the mine life is provided in the surface water management plan (Appendix C1(a)- Water Management Plan).

C.7.2 Water Supply

Water sources for the project, inclusive of required volumes for the purpose of the Instream Flow Augmentation Plan, have been evaluated through various modelling simulations involving the integration of groundwater modelling and hydrology and mining supply needs analysis, followed by the preparation of a site-wide water balance. Further technical details regarding the water supply model are provided in CR #4 – Surface Water Hydrology. The water supply model indicates that the current water sources approved as part of the Phase I operations are adequate to meet the operational water needs associated with the addition of the Phase II Project. These water sources include:

- Pit seepage capture;
- Contact water capture from precipitation and runoff within mine areas;
- Pit depressurization wells discharge; and
- Groundwater dewatering wells.

However, to ensure a stable and appropriate quality source is readily available for instream needs in addition to operational needs, Coalspur is applying to include the McLeod River as a water diversion source. The details associated with the McLeod River freshwater supply project can be found in Appendix C3 – McLeod River Freshwater Supply and are summarized in Section C.7.3.

An annual rather than monthly water balance was developed for two reasons: (1) production is the primary driver of water use and this production is planned and executed on an annual basis, and (2) water management plans deliberately include a separation of surface water runoff and groundwater accumulation from the make-up water needs of the plant. There is almost no climate or seasonal variable driver to the water needs of the plant (the exception is noted below). Nearly all surface runoff and groundwater accumulated in active pits will be returned to McPherson Creek after routing and treatment through ponds. A McLeod River appropriation will be used to make up the water needs of the coal processing plant. Unique to this plan is the intention to route runoff will be routed from the North Refuse Dump to the coal processing plant. The water from the North Refuse Dump may be higher in selenium and other metals and the routing of this water to the process water stream and then ultimately to pore-water in the tailings basins provides treatment, if this is observed in the North Dump Runoff. Within the anaerobic conditions of these tailings basis these metals will either precipitate or be bound in iron and sulfur complexes. This water source is seasonally and climatically influenced and hence runoff (from the HEC HMS model) during an average and very dry year (1970) was considered in the balance. In the long term (e.g., average conditions), the difference between precipitation and evaporation is zero and there is no net loss to evaporation in the Freshwater Pond. The 1970 simulation included the effect of negative precipitation minus evaporation for the Freshwater Pond on the water balance.

Annual water balances for the 12 years of Application Case mining are detailed in CR #4. For average conditions, annual make-up water needs from the McLeod River are expected to range from 0 to 0.75 with an overall average of 0.42 million cubic meters. During a dry year, make-up water needs from the McLeod River are expected to range from 0 to 1.13 with an overall average of 0.60 million cubic meters. A schematic showing a snapshot of the mine water balance at average full production is presented in

Figure C-23. Sources as well as water sinks describing the Water Balance Schematic are provided in Table C-17 and Table C-18 for average and very dry conditions respectively.

Pursuant to the Water Act, Coalspur is applying for a new Water Act Approval and Licence for the Vista Mine. As part of the new Water Act Approval and Licence, Coalspur proposes to cancel the existing Water Act Approval and Licence. The new Approval and Licence will encompass both the current operations and the proposed Phase II Project. Water Act Approval and Licence forms can be found in Appendix 6 - Water Act Application Forms. Revisions to water allocations are driven by the change in source, from groundwater sources to surface water sources, as well as water demand required to ensure a water storage volume is available at the end of mine closure to expedite the fill time of the end pit lake. Table C-16 provides a comparison of currently approved water source allocation in comparison to the proposed water source allocation.

Table C-16 Approved Maximum Water Diversion Volumes and Proposed Change to Water Source Allocation

Approved Under Licence No. 00311965-01-00 Versus Proposed Under New Licence		
	Approved Annual Volume	Proposed Annual Volume
Groundwater	2,679,500 m^3	1,253,000 m^3
Surface Water	422,050 m^3	474,000 m^3
McLeod River	N/A	3,679,000 m^3
Total	3,101,550 m^3	5,407,000 m^3

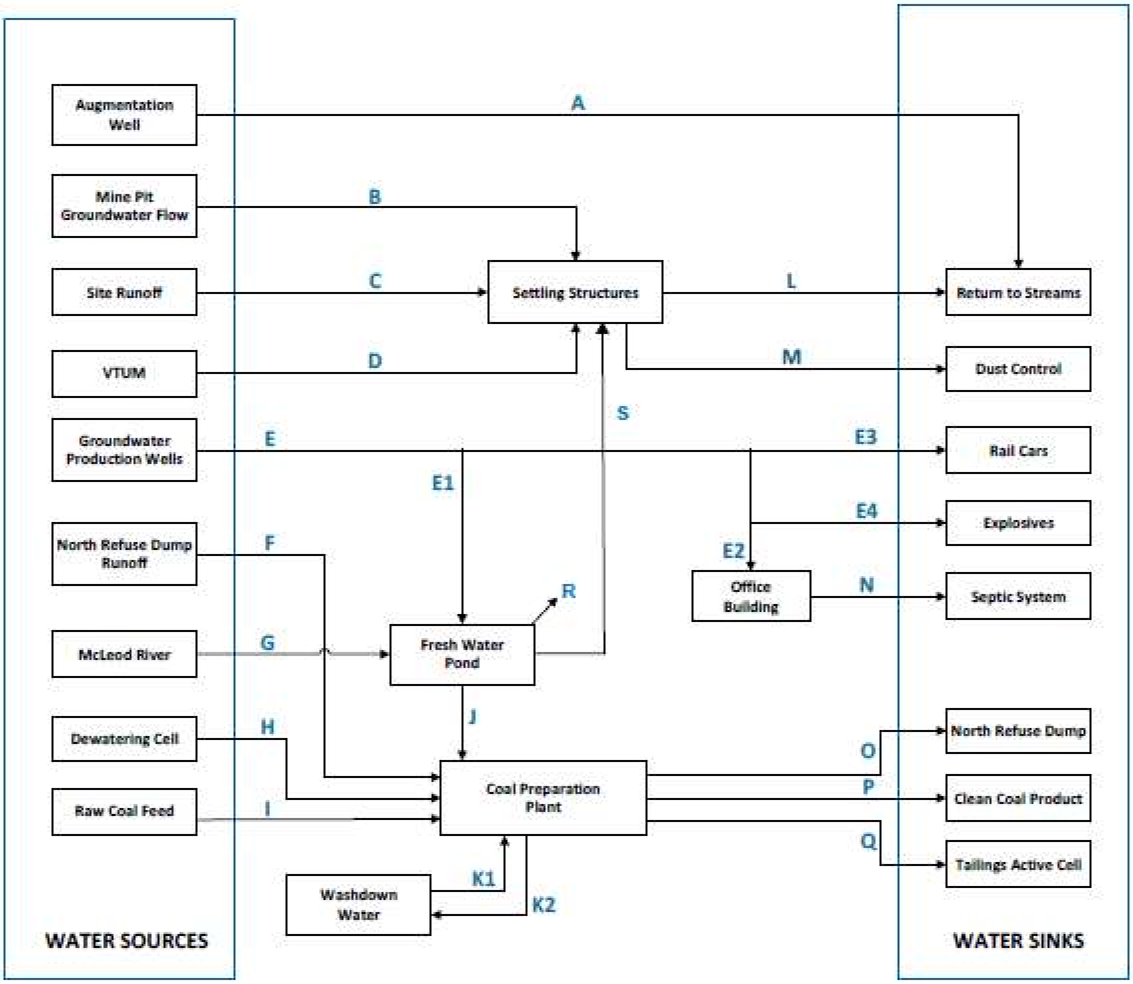


Figure C-23 Coal Processing Plant and Combined Phase I and II Mine Site Water Balance

Table C-17 Coal Plant and Mine Site Average Annual Water Balance

Code	Description	Annual Water Volume – millions of cubic metres											
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Water Sources													
A	Aug Well to Stream	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
B	Mine Pit Ground Water	2.4	2.1	2.6	1.4	2.3	2.6	2.6	1.9	1.6	1.7	1.4	0.7
C	Mine Site Runoff[2]	1.54	1.49	1.51	1.30	1.18	1.09	0.95	0.90	0.82	0.71	0.69	0.64
D	Underground Mine (VTUM)	0.62	0.64	0.72	1.01	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	Groundwater Production Wells[3]	0.69	0.71	0.80	1.08	1.17	0.07	0.07	0.06	0.06	0.06	0.06	0.06
F	North Refuse Dump Runoff	0.33	0.33	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.51	0.54
G	McLeod River Make-Up	0.77	0.52	0.28	-0.14[5]	-0.36[5]	0.49	0.63	0.59	0.52	0.55	0.81	0.95
H	Dewatering Tailings Cell[1]	0	0	0	0	0	0	0	0	0	0	0	0
I	Raw Coal Feed	1.62	1.38	1.24	1.14	1.04	0.79	0.96	0.94	0.88	0.93	1.22	1.21
K1	Washdown Water In	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
	Total	8.2	7.4	7.7	6.4	7.0	5.7	5.9	5.1	4.6	4.7	4.9	4.3
Sinks													
E3	Production Wells to Rail Cars	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
E4	Production Wells to Explosives	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
K2	Washdown Water Out	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
L	Return to Streams[4]	4.7	4.4	5.0	3.9	4.7	3.8	3.8	3.0	2.6	2.5	2.2	1.5
M	Dust Control Water Use	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
N	Septic System Water Use	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
O	Water in Refuse Dump Material	0.37	0.32	0.29	0.26	0.23	0.18	0.22	0.21	0.20	0.21	0.28	0.29
P	Water in Clean Coal Product	1.02	0.87	0.79	0.72	0.65	0.49	0.60	0.59	0.55	0.58	0.76	0.81
Q	Water Trapped in Tailings Cell	1.78	1.53	1.38	1.25	1.14	0.87	1.05	1.03	0.96	1.02	1.34	1.43
R	Freshwater Pond Net Evaporation	0	0	0	0	0	0	0	0	0	0	0	0
	Total	8.2	7.4	7.7	6.4	7.0	5.7	5.9	5.1	4.6	4.7	4.9	4.3
Transfers													
E1	Production Wells to Freshwater Pond	0.66	0.68	0.76	1.05	1.13	0.03	0.03	0.03	0.03	0.03	0.03	0.03
E2	Production Wells to Office	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
J	Freshwater Pond to Plant	1.23	1.00	0.85	0.71	0.58	0.33	0.47	0.43	0.35	0.39	0.64	0.78
S	Freshwater Pond to Settling Structures	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19

[1] Consolidation of tailings prior to capping and after active tailings deposition is completed is expected to be minimal and produce negligable water.

[2] Areas with active mining including pits, roads, disturbed areas, and dumps.

[3] Total available water as calculated from the MODFLOW model.

[4] Sum of augmentation well to stream, groundwater accumulated in all active mines, and runoff from disturbed areas and mine pits (mine site runoff). Does not include undisturbed area within or near the active mines or areas outside of the mine boundary.

[5] Negative value indicates excess water available. Excess water can be managed by reduced groundwater production well pumping

Table C-18 Coal Plant and Mine Site Annual Water Balance for a Dry Year

Code	Description	Annual Water Volume – millions of cubic metres											
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Water Sources													
A	Aug Well to Stream	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
B	Mine Pit Ground Water	2.4	2.1	2.6	1.4	2.3	2.6	2.6	1.9	1.6	1.7	1.4	0.7
C	Mine Site Runoff[2]	0.47	0.46	0.47	0.40	0.36	0.34	0.29	0.28	0.25	0.22	0.21	0.20
D	Underground Mine (VTUM)	0.62	0.64	0.72	1.01	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	Groundwater Production Wells[3]	0.69	0.71	0.80	1.08	1.17	0.07	0.07	0.06	0.06	0.06	0.06	0.06
F	North Refuse Dump Runoff	0.10	0.10	0.11	0.12	0.12	0.13	0.14	0.14	0.15	0.15	0.16	0.17
G	McLeod River Make-Up	1.00	0.75	0.53	0.12	-0.07[5]	0.79	0.94	0.92	0.85	0.90	1.17	1.33
H	Dewatering Tailings Cell[1]	0	0	0	0	0	0	0	0	0	0	0	0
I	Raw Coal Feed	1.62	1.38	1.24	1.14	1.04	0.79	0.96	0.94	0.88	0.93	1.22	1.21
K1	Washdown Water In	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
	Total	7.1	6.4	6.7	5.5	6.2	4.9	5.3	4.5	4.1	4.2	4.4	3.9
Sinks													
E3	Production Wells to Rail Cars	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
E4	Production Wells to Explosives	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
K2	Washdown Water Out	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
L	Return to Streams[4]	3.6	3.3	3.9	3.0	3.9	3.1	3.1	2.4	2.0	2.1	1.7	1.0
M	Dust Control Water Use	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
N	Septic System Water Use	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
O	Water in Refuse Dump Material	0.37	0.32	0.29	0.26	0.23	0.18	0.22	0.21	0.20	0.21	0.28	0.29
P	Water in Clean Coal Product	1.02	0.87	0.79	0.72	0.65	0.49	0.60	0.59	0.55	0.58	0.76	0.81
Q	Water Trapped in Tailings Cell	1.78	1.53	1.38	1.25	1.14	0.87	1.05	1.03	0.96	1.02	1.34	1.43
R	Freshwater Pond Net Evaporation	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047
	Total	7.1	6.4	6.7	5.5	6.2	4.9	5.3	4.5	4.1	4.2	4.4	3.9
Transfers													
E1	Production Wells to Freshwater Pond	0.66	0.68	0.76	1.05	1.13	0.03	0.03	0.03	0.03	0.03	0.03	0.03
E2	Production Wells to Office	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
J	Freshwater Pond to Plant	1.46	1.23	1.10	0.97	0.86	0.62	0.78	0.75	0.69	0.73	1.00	1.16
S	Freshwater Pond to Settling Structures	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19

[1] Consolidation of tailings prior to capping and after active tailings deposition is completed is expected to be minimal and produce negligable water.

[2] Areas with active mining including pits, roads, disturbed areas, and dumps.

[3] Total available water as calculated from the MODFLOW model.

[4] Sum of augmentation well to stream, groundwater accumulated in all active mines, and runoff from disturbed areas and mine pits (mine site runoff). Does not include undisturbed area within or near the active mines or areas outside of the mine boundary.

[5] Negative value indicates excess water available. Excess water can be managed by reduced groundwater production well pumping

C.7.2.1 CPP Water Balance

CPP processing water inputs include free moisture from the incoming feed and water, fresh water and recycled water. Water losses are from the product streams (coarse rejects and clean coal) and from the thickener underflow (reports to the tailings cells). A site water balance is provided in Figure C-23. In order to manage the water and solids flows efficiently, flow meters and density gauges are strategically installed in the appropriate streams. These volumes are measured continuously to maximize the amount of water being recycled in the Plant and minimize the reliance on external water sources.

C.7.3 Stream Flow Monitoring and Augmentation Program

Coalspur currently implements a Steam Flow Monitoring and Augmentation Program to document and manage the potential effects of mine operations on flow regimes in fish-bearing streams. In this program, continuous flow monitoring is conducted on all fish-bearing streams in which mining operations are disturbing or diverting water out of more than 5% of the watershed. Augmentation of flows that are being impacted by mine operations are conducted if those that drop below a pre-determined value.

The augmentation plan update builds on the Phase I plan framework, incorporating improvements and lessons learned throughout Phase I. Improvements include site-specific ecological requirements and instream flow needs (IFN), such as a habitat suitability model, which is expected to refine the augmentation procedures developed for Phase I. Detailed surface water and groundwater modelling information is incorporated into the program as necessary to improve the updated augmentation plan before Phase II mining begins.

The main objective of the updated augmentation plan is to provide a clear and logic-driven framework for Coalspur to mitigate potential impacts from Phase II operations in instream flows of the program's identified watercourses. Further details are provided in Appendix C4 – Vista Mine Flow Augmentation Plan Update.

C.7.4 McLeod River Water Supply

To ensure the instream mitigation plan can be implemented with a stable and reliable freshwater source, Coalspur is proposing to utilize the McLeod River as a water supply. The McLeod River water source will be prioritized for the purpose of augmenting instream flows that have been identified under the program. Water will be diverted from the McLeod River using a submersible pump within SE 21-51-22 W5M (Appendix C3), approximately 10 km east of the Mine's most eastern boundary. Water from the river will be transported using an above ground layflat freshwater line and will transport water to the Mine's Freshwater Pond, where water will then be transferred to appropriate storage locations within the mine site using a pumping system. Storage locations will vary depending on the progression of mining, and will include sedimentation ponds to be released or pumped to stream flow augmentation points.

During mining operations, the water will be used on an as need basis. Operational rules will be established for the intake so that water is only diverted when there is sufficient flow in the river to meet or exceed the McLeod River in-stream objective, with a maximum withdrawal rate of 5,450 m^3/day (0.063 m^3/s). In order to support the maximum flow rate across the freshwater line, three pump stations will be installed along the freshwater line right-of-way. The pump stations will be housed in 10′ x 20′ (3 m X 6 m) metal enclosure. They will be provided electricity from a diesel generator. All diesel generators will be placed on spill containment to prevent any fuel from spilling into the environment.

During winter months, heat trace will be utilized where practical or necessary. Each metal enclosure will be equipped with a heat/cool unit to maintain proper temperature during operation. The pumps will be set up with wireless communication so that pump amps, flow, and/or pump failure can be monitored. In the event the pumps cannot be set up with this then they will be inspected routinely anytime while they are in operational. A survey sketch and further details related to the McLeod River Project assessment are provided in Appendix C3. The draft Public Lands Act application for the formal dispositions associated with the McLeod River Project can be found in Appendix 5 – Public Lands Act Disposition Applications.

C.7.5 Domestic Wastewater

There is no impact on the domestic water system as a result of the Phase II Project as there are no plans to expand the workforce. The Vista Mine includes the following facilities that generate domestic wastewater: toilets/urinals, faucets, showers, and a small kitchen. There are no additional modifications required to the domestic wastewater facilities and infrastructure as part of the Phase II mining operations.

Domestic wastewater and sewage are managed using an at-grade septic system located at the main office. The septic system is designed to ensure no septic wastewater becomes surface runoff. Septic waste is collected onsite in the Septic Treatment System and then pumped out by vac-truck as required and disposed of off-site at a licensed Wastewater Treatment Facility by a licensed contractor. All other domestic wastewater generated on-site is collected and disposed of off-site.

C.8 Miscellaneous

C.8.1 Mine Maintenance Facility

Mine maintenance facilities have been constructed for the Phase I operation. No new facilities are planned for Phase II. Most maintenance on large or medium-sized equipment is completed in a safe area within the mine. More significant maintenance projects may require sending equipment/parts off-site.

C.8.2 Ancillary Facilities and Infrastructure

C.8.2.1 Office Complex/Mine Dry

Mine offices and dry have been constructed and are currently in use for Phase I operations. These existing facilities will continue to be used for phase II operations without change.

C.8.2.2 Shops and Warehousing

Coalspur has commercial-grade portable buildings for the heavy truck shop, the warehouse, and plant maintenance shops. Coalspur also has a truck wash bay, and a tire bay separate from the maintenance facility. These areas have been approved as part of the current mining operations, and no modification or additional space will be required as part of the Phase II operations.

C.8.2.3 Fuel and Chemical Storage

As approved, the Mine is designed to minimize the environmental impacts of any potential spills. All fuel and chemical storage areas and all storage tanks for recycled water have secondary containment to contain spills and leaks in accordance with the current Approval conditions (as amended). All aboveground storage tanks, including storage tanks containing water recycled from the McPherson Tailings Settling Cells, are in accordance with the Guidelines for Secondary Containment for Above Ground Storage Tanks, Alberta Environmental Protection, 1997, as amended. In addition, all storage tanks containing hazardous materials, hazardous recyclables, dangerous goods, or water recycled from McPherson Tailings Settlings Cells are equipped with the following as per the approval conditions:

- Sensors for detecting the level in each tank;
- High-level alarms that activate when a tank overfill is imminent; and
- Automatic shut-off devices or sufficient freeboard space above the high-level sensor to allow operators time to prevent overfill from occurring.

The maintenance shop and warehouse are used to maintain heavy and light-duty vehicles and mine mobile equipment. All fuels, lubricants, and solvents are stored in fully contained, protected facilities outside the shop and accessed only by trained service truck operators. No additional fuel and chemical storage facilities will be constructed as part of the Phase II Project.

The Project has a fuel bay/station where fuel and diesel are stored in double-walled storage tanks. Secondary containment berms surround the storage tanks, and site drainage is managed.

Hydrocarbons will be present in vehicles throughout the Project area. Best management practices, including spill prevention and leak detection monitoring, and secondary containment, will reduce the potential of any effects on groundwater quality. The spill response plan is in place to minimize the extent and impact of any accidental spills or leaks.

A variety of chemicals, lubricating oils, and domestic supplies have been required for current operations. Storage and tracking of supplies and disposal of waste products have included the provision of secondary containment, leak detection, and inventory reconciliation, as necessary. There are no new chemicals, lubricating oils, or domestic supplies proposed as part of the Phase II Project.

C.8.3 Fire Protection

Sprinklers and fire hoses are required as part of the current operations. The fire water is provided from two pumps fed from two different ponds on two different power supply circuits.

C.8.4 Power and Gas Supply and Distribution

C.8.4.1 Power Supply and Distribution

The Mine currently includes two separate power supply sources for increased reliability. This redundancy ensures that enough power is available to undertake all of the mining loads in the event of a single faulty power supply source. All electrical equipment and grounding is designed to meet the existing codes for

Mines in Alberta. Phase II mining operations are expected to consume approximately 41,280 MWh annually.

There are no new proposed changes to the current substation as part of the Phase II expansion. The substation currently accommodates the following:

- 138kV outdoor equipment;
- Two main transformers (138kV/25kV, 42MVA);
- Control building; and
- Electrical room.

The 25kV switchgears outside the control building feeds the entire plant site and mining facility loads. The two main transformers are sized to ensure that one transformer is able to undertake 100% of the loads when one transformer fails or is under maintenance. The additional power distribution centers are set up in accordance with the process equipment layout.

Power supply and distribution for the overall plant site includes the following:

- Altalink transmission line feed;
- Substation;
- Overhead line to primary crushing area and pit area;
- All electrical distribution equipment and motor feeders;
- Building lighting and power; and
- Communications/fire protection alarm.

C.8.4.2 Power Supply Sources and Voltage

There are two sources of power supply from the surrounding area for the Vista Coal Mine that are owned and operated by Altalink; the Cold Creek 602S substation and the Bickerdike 39S substation. The voltage of the overhead transmission lines, 745L from Bickerdike 39S and 625L from Cold Creek 602S, are 138kV. The lines can carry a capacity of 174 MVA in the summer and 215 MVA in the winter. The seven-kilometer route for the double-circuit transmission line runs parallel to the overland conveyor and continues until it terminates at the Mine's various substation locations. The double-circuit distribution line was installed on industry standard double-circuit structures.

C.8.4.3 Power Supply System (Main Substation)

The substation is equipped with two transformers (42 MVA, 138/25kV), outdoor 138kV equipment (circuit breakers and disconnect switches, etc.), a control building (25kV switchgears; associated components for monitoring and controlling system; communication and relay protection), and an electrical room (25kV/4.16kV and 25kV/600V transformers, MCCs, VFDs, and others). As part of Coalspur's current Remedial Action Scheme, the main substation has protections to trip off in the event that Altalink's transmission line starts to become unstable in order to protect the line's integrity. All of Coalspur's current substation and distribution system will handle the additional loads associated with Phase II.

C.8.4.4 Power Distribution System

The main substation is located South of the project area, while the other power distribution stations (electrical room and modular electrical rooms) are located in the different loads centers in the general vicinity of the process equipment that it will power.

All current electrical rooms (e.g. Truck Dump electrical room) associated with the Mine's current operations will accommodate both Phase I and Phase II. The Truck Dump is anticipated to remain in its current location and will be the main terminal for both Phase I and Phase II coal hauls. The Truck Dump Electrical Room #1 consists of:

- One (1) dry-type transformer (25kV/4.16kV, 10.0MVA);
- 4160V switchgear:
- VFDs; and
- Other electrical equipment.

An electrical room will be set up in the Phase II boundary to undertake all loads in the following receptive area:

South Pits Tailings Cell Pumping System (Electrical Room #2)

Electrical room to accommodate:

- One (1) dry-type transformer (25kV/4.16kV, 10.0MVA);
- 4160V switchgear:
- VFDs; and
- Other electrical equipment.

The power source is from the main substation 25kV switchgear via an overhead power line.

C.8.4.5 Transformer Selection

All modular electrical rooms have at least one transformer sized appropriately to power the numerous loads associated with each electrical room. Each electrical room has the connected load broken down into individual equipment/items, and load calculations were made to determine the average load. This value was then used to determine the transformer capacity that would achieve a load factor of less than 75%.

C.8.4.6 Natural Gas Supply

A natural gas supply line is currently tied in at a Tourmaline remote field main line, which follows the northern boundary of the plant site. The remainder of the distribution for the gas is completed by Coalspur. No additional modifications or alterations are anticipated with the addition of the Phase II expansion.

C.9 Environmental Management Systems

Coalspur's goal is to foster the safe, orderly, and efficient development of its coal resources. This is done in a manner to achieve and maintain a balance between meeting the needs of its customers and protecting the environment. As part of conducting its mining operations in a safe and efficient manner, the company strongly endorses initiatives that protect the environment and enhance environmental management practices. These initiatives adaptively manage the company's proactive commitment to carrying out mining operations in an environmentally responsible manner. Management Plans have been developed as part of the Phase I operations and are continuously revised and updated to evolve with the Mine's operational progress.

Details on the specific programs and procedures that reflect Coalspur's commitments towards environmental protection within the Project area are identified and discussed in the following sections.

C.9.1 Responsible Management

Coalspur is committed to providing responsible management for its operations:

- Mine development is carried out in a professional and environmentally responsible manner;
- Impacts on the biophysical environment are mitigated;
- Human health, well-being, and safety of its employees are safeguarded; and
- All management-level staff are familiar with the company's policies regarding operating practices and environmental protection measures and that employees under their supervision receive proper instruction with respect to policy and procedures through training for on-site job and safety, health, and environmental programs.

C.9.2 Environmental Protection Measures

Coalspur will ensure that environmental aspects and protection measures are taken into consideration during all phases of mine development, from planning to reclamation. Successful mitigation measures currently implemented as part of the Phase I mining operations will be applied to the Phase II extension activities. This includes mitigation measures to protect environmental quality and/or quantity of air, water, vegetation, wildlife, and land resources.

C.9.3 Participant in Environmental and Regulatory Initiatives

Coalspur is an active participant in many environmental and regulatory initiatives and will continue to be an active member of these programs during the operating life of the Project. Programs range from participation in regional programs such as the West Central Airshed Society (WCAS), the Athabasca Watershed Council and West Fraser's Forest Resources Advisory Group (FRAG) to provincial and national initiatives.

C.9.4 Regulatory Compliance and Adaptive Management

Coalspur is committed to ensuring that its activities and operations comply with all relevant laws and regulations. This commitment is attained in many ways:

- Designated Coalspur employees are kept informed of relevant laws, regulations, and operating guidelines through training programs;
- Continual review and updating of emergency preparedness procedures; and
- Continual review and updating of operating procedures, including responsible handling, use, and disposal of products and materials.

Environmental and Occupational Health and Safety Inspectors routinely monitor Coalspur's site operations and regulatory compliance. Coalspur will continue to carry out its environmental and operating programs within the Project area using an adaptive management approach.

C.9.5 Respect the Interests of the Public

Coalspur is committed to respecting all interested publics concerning Project development. Coalspur believes that the information provided and commitments made in this application will demonstrate its recognition of public engagement for this Project. Refer to Part G for details on the public engagement program.

C.9.6 Environmental Protection Program

The purpose of the Environmental Protection Program at the Coalspur Mine is to first prevent and second to minimize adverse environmental impacts resulting from mine related operations. The program will be implemented in the Project area through the following on-site mechanisms:

- Adaptive management approach to environmental risk assessment;
- Health/Safety/Environment Group comprised of key Coalspur employees;
- Emergency response and wildfire control and prevention;
- Waste management program;
- Spill response and cleanup procedures;
- Operating policy commitments; and
- Site reclamation.

A brief discussion illustrating how environmental impacts are prevented and/or minimized through each of these mechanisms is provided in the following subsections:

C.9.6.1 Emergency Response and Wildfire Control and Protection

Coalspur implements an Emergency Response Plan in place for various emergency situations. As part of the Emergency Response Plan, the Emergency Response Team (ERT) is trained to assist in:

- Fires;
- Extrication of trapped persons;

- Care of injured persons;
- Chemical spills; and
- Other emergencies.

Detailed emergency response plans are specifically designed for various sites at the Mine and will be present throughout all mine expansion areas associated with the Project. These specific plans rely on personnel training, leadership, and communication between team members and all involved parties.

Coalspur also implements a Wildfire Control and Prevention Plan, which is updated annually for each wildfire season. This plan includes on-site fire prevention and control equipment, communication procedures as well as off-site communication with the public and firefighting authorities, and cooperative efforts in regional fire prevention and control. Fire prevention, detection, reporting, and suppression measures are the basis of this plan.

C.9.6.2 Waste Management Program

Waste is defined as any unwanted, non-recyclable solid or liquid material that is intended to be treated or disposed of. Waste also includes refuse and garbage (Section 2(1) (t) of the Activities Designation Regulation of EPEA). As outlined in the Alberta User Guide for Waste Managers (AEP, 1996), the generator is responsible for classifying their waste and determining the proper disposal procedure for each waste product.

C.9.6.3 Spill Response and Cleanup Procedures

Coalspur has evaluated the various products to be used in the Phase II Project area and the potential risk of exposure to the general public and biota. Based on this review, three purchased products (i.e., diesel fuel, ammonium nitrate, and flocculants) and two mining by-products (coal dust/PM10 and suspended sediment) were identified and have been evaluated for impact assessment. The results of the evaluations concluded that the products used in the mining of the Phase II expansion area would not impact the general public or biota. The assessment evaluated current operating practices. A comprehensive spill response program will be in place to prevent any adverse effects on the environment.

C.9.6.4 Spill Prevention and Detection Monitoring Procedures

All Coalspur employees are accountable for ensuring that a high level of spill prevention is maintained by following good housekeeping and maintenance practices. Programs are in place, which include product inventory monitoring, inspections of containment and transfer facilities, and leak detection monitoring. Records of these practices are also maintained. Facilities requiring repair will be brought to the attention of the Maintenance Department for follow-up action.

C.9.6.5 Spill Containment Responsibilities

In the event of a spill, the effectiveness of response operations is influenced by the time in which the spill is detected, controlled, and contained. The initial spill response is designed to address the issues of paramount concern such as personal safety, environmental and property protection. After a spill is detected, the following actions are taken:

- Ensure that the source(s) of the spill has been shut off;
- Determine the level of hazard to personnel, property, and the environment. If necessary, the Senior Foreman is called for assistance. The Senior Foreman may elect to handle cleanup operations with departmental personnel. If it appears that the spill could result in damage or harm to personnel, the environment, or property, Coalspur's Emergency Response Team will be called and respond for cleanup. If additional manpower and spill response expertise is required, it will be obtained through mutual aid support groups, spill cleanup contractors and/or consulting services;
- Start spill containment, recovery, and cleanup operations with equipment on hand; and
- Initiate spill notification procedures.

C.9.6.6 Spill Cleanup Procedures

Initial cleanup operations focus on containing the spilled product to prevent further contamination. The spill is contained to the smallest manageable area possible to channel flow to containment areas and to keep the spill out of watercourses.

The immediate area around a product spill will be secured and kept clear of nonessential personnel. Reference will be made to the product Material Safety Data Sheet for proper treatment and cleanup procedures. If practical and feasible, spilled material will be recovered and returned to a storage area for reuse or recycling. Spilled material that cannot be recovered will be picked up and stored for proper disposal. Procedures followed in the onsite disposal or short-term storage of contaminated material will comply with regulatory requirements for disposal/storage.

C.9.6.7 Spill Training

Coalspur employees receive instruction through health, safety, and environment training programs to ensure they understand spill notification and cleanup procedures. In addition, each departmental Senior Foreman and all Emergency Response Team Members receive spill prevention training (supplemented by appropriate training manuals) and "hands-on" field training sessions. Coalspur provides onsite Spill Containment and Cleanup workshops for all Emergency Response Teams within the organization.

C.9.7 Site Reclamation

Another key component in Coalspur's Environmental Protection Program is the site reclamation program carried out following mining operations. Site reclamation activities for the Project area are discussed in detail in Part F – Conceptual Conservation and Reclamation Plan of this application.

C.9.8 Continuous Improvement Program

Adaptive management is the preferred tool for addressing uncertainty and will be used by Coalspur over the course of the Project life. Adaptive management is a structured process used to systematically test assumptions in order to learn and adapt to unexpected results. Adaptive management involves a six-step cycle:

- Assess operational needs and environmental issues;
- Develop management objectives and select the appropriate technology or management practice;
- Implement that technology or management practice;
- Monitor the results;
- Evaluate the effectiveness of the design against management objectives; and
- Adjust the design as necessary and repeat the cycle.

Adaptive management principles will be applied in the following areas:

- Changing environmental regulatory requirements;
- Consideration of the Athabasca River and McPherson Creek/McLeod River watersheds;
- Predictions regarding energy efficiency and air emissions; and
- Management of cumulative environmental effects in the region.

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