1.4 DETERMINATION OF BOND

Trapper Mining Inc. presently maintains a reclamation performance bond for the Trapper Mine payable to the State of Colorado and the United States Office of Surface Mining Reclamation and Enforcement. Upon approval of this permit application, a performance bond or equivalent, acceptable surety will be secured in an amount equal to the estimated costs for returning the affected area to a satisfactory condition as defined by applicable regulations and this permit application.

The equipment productivity estimates used in regrade time calculations were derived from the **Caterpillar Performance Handbook, edition 49**. Topsoil fleet hours were derived using **TALPAC** haulage simulation software. DRMS database ownership and operating costs were used where available; otherwise, these costs were extracted from Trapper Mining Inc. historical data and information obtained from Wagner Equipment Rentals.

All reclamation costs were calculated according to the worst-case condition of reclamation requirements. The costs that were calculated in this manner realistically represent those the Division could incur at any time during the permit period, and not just for the conditions that may exist at the end of the five years. Appendix A Tables A-1 through A-14 summarize regrade, topsoil replacement, revegetation areas & costs, demolition, and miscellaneous costs associated with mine closure. The driving factor in determining the worst-case year was the extent to which Ithaca (I), Jennings (J), Colt (C), Lancaster (L), and Nighthawk (N)-pits have been opened.

During the proposed worst-case year, which is estimated to be 2023, the depth and resulting volume of material required to backfill C, I, J, N, and L pits is at its maximum, with respect to the permit term. The projected new disturbance, which includes the dragline, dozer stripping, and truck/Excavator operations, is greatest in the year 2023 (see Table 1.4-2).

The primary contributing factor to the increase in the projected Performance Bond for the worst-case bond year of 2023 is the development of C, I, and J Pits. These pits will be opened in 2022, with topsoil stripping operations and development of the initial box cuts.

By 2023, N pit will have advanced to the point that much of the box-cut is open, with some additional pre-stripping having occurred, thus resulting in a substantial area of pit being open. In addition, highwall mining in the initial boxcut is in progress, which will require a delay in reclamation activity during this process.

The Ash Pit is anticipated to still be receiving ash from Craig Station. There will be some reclamation done in the ash pit by 2023, but a significant portion of the pit will remain open beyond the permit term.

Derringer/Enfield Pit, previously anticipated to receive ash, will be partially graded in 2022, but will not be Phase I bond released, and therefore will be included back into the PR11 Bond Estimate.

As L pit advances eastward, the cuts tie into the former East A (AE) pit. AE pit has been incorporated into L pit and, therefore, will be no longer be referred to as a separate pit.

Due to the pre-stripping operations with the Truck/Excavator fleet, combined with the dozer stripping and dragline operations, L pit's overall disturbance area, with respect to the five year permit term, is greatest in 2023 (see Table 1.4-2).

Table 1.4-1

Table 1.4-1	Summary of Costs for Trapper Mine Bond Determination				
(Table A-1.1 in Appendix A)					
	(2023 Mine Closure Scenario)				
Activity	Cost ($)		Supporting Information		
Direct Costs					
Regrade	$ 22,851,653	*	Appendix A, Tables A-3 throug A-8		
Topsoil Replacement	$ 7,333,420	*	Appendix A, Tables A-9 and A-10		
Facilities Removal	$ 945,757		Appendix A, Table A-12		
Revegetation	$ 2,067,465	*	Appendix A, Table A-11		
Miscellaneous	$ 859,138		Appendix A, Table A-13		
Total	$ 34,057,434				
Indirect Costs					
Public Liability Ins (2.02%)	$ 687,960				
Contractor Perf Bond (1.05%)	$ 357,603				
Contractor Profit (10%)	$ 3,405,743				
Job Superintendent	$ 708,124		(26 months @ $6297.30/Mo. from DRMS Circes Task #01A		
DRMS Admin Expense (7.5%)	$ 2,349,963				
Total Indirect Cost	$ 7,509,394				
			Acres	Cost/Acre	%
PR9 Worst Case Bond Estimate Total	$ 41,566,827		2307.8	$ 18,011.40	100%
Phase I Bond Release	$ 2,149,121		298.3	$ 7,204.56	40%
Phase II Bond Release	$ 1,263,320		467.6	$ 2,701.71	15%
Grand Total PR11 Bond Estimate:	$ 44,979,268				
* Note: Table A-2 contains equipment unit costs and correction factors used in calculations of the above Direct costs.					

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Table 1.4-2

Table 1.4-2	Determination of Worst Case Bond Year				
	New Pit Disturbance Footprint Acres				
Pit	2023	2024	2025	2026 *	2027 *
Ash Pit	0	0	0	0	0
C	188.7	0	0	0	0
I Pit West	31.1	28.4	0	0	0
J West Pit	0	0	0	0	0
L	26.8	0	10.9	0	0
N	0	7.6	0	0	0
	246.6	36	10.9	0	0
	* No new increase in pit footprint in these years				
	From M10 Map series, projected disturbance				

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A summary of the estimated mine closure cost is presented in Table 1.4-1. Please refer to Map M6 for the post mining topography of the worst-case bond year (2023) and to subsequent tables and sections in Appendix A of the permit application as indicated in Table 1.4-1 for more detailed analysis and discussion.

The bond amount of $44,979,268 will be applied to our permit revision (PR11). This cost represents the worst-case year, with respect to final reclamation, for the period 2023-2027. Trapper estimates that during the worst-case year of 2023, the total disturbance within the approved permit area will be 2,307.8 acres, which includes miscellaneous areas such as light use roads and silo locations.

The increase in the bond amount is due mainly to the development of C, I, and J pits in the west panel of Trapper's permit area. However, the bond estimate also includes the more expansive nature of Trapper's current mining methods, regarding the combined dragline, dozer stripping, and pre-stripping by the Truck/Excavator operations. These operations contribute significantly, as well as the re-introduction of D/E Pit reclamation costs into the Bond estimate. The 2022 reclamation of D/E Pit will not be completed as forecasted in the PR9, and PR10 revisions, therefore, this cost has been added back into the Performance Bond estimate to account for this activity in the next permit term.

1.4.1 Regrading

Regrading would be the initial reclamation activity conducted at a mine if the operator permanently ceased operations. The areas requiring regrade at Trapper Mine, if this improbable event occurred, would be the open pits and associated spoil piles, roadways, impoundments, and ash disposal area. Regrade costs are summarized in Appendix A, Table A-3. Supporting calculations are shown in Tables A-4.1 through A-4.8.

1.4.1.1 Pit Regrading

The pit regrading costs for Trapper Mine include the Ash, Colt (C), Derringer (D), Ithaca (I), Jennings (J), Lancaster (L), and Nighthawk (N) pit areas.

Conceptually, the backfilling of the open pits would be accomplished mainly through grading of highwalls and spoils with dozers. Colt, Jennings, Ithaca, Lancaster, and Nighthawk pits would also include truck//excavator backfilling. The Ash Pit, Jennings West, and Lancaster pits would require some blasting and highwall reduction. The cross sections used to calculate the volumes shown for all pits in the regrade tables are included in Appendix A. The spoil diagrams that are the basis of the regrade sections were developed using Mincom software, and are a relatively accurate depiction of pit geometry before regrade. The cross-sectional areas were applied to incremental pit lengths for the worst-case year of 2023. The number of cross sections constructed for each pit depended upon the total pit length, and the variability of overburden and interburden depths. Dozers would do the backfilling and grading as this is the most cost-efficient equipment, other than draglines, given the average distances calculated. Caterpillar D11T dozers were selected as the most efficient equipment to complete the regrading task. Additional truck/excavator work was required to backfill the Ash, Colt, Ithaca, Lancaster, and Nighthawk pits, and to insure positive drainage.

Pits will generally be backfilled using spoil material currently available within existing spoil rows associated with each pit. In C, I, J, and N pits, a temporary spoil pile will be utilized for final backfill placement. Appendix A provides appropriate cross sections of existing and regraded post-mine topography.

1.4.1.2 Roadway Regrading

For purposes of estimating reclamation cost, three types of roads have been identified at Trapper Mine, which include access, haulage, and dragline walk roads. These roadways are designed and constructed to minimize amounts of cuts and fills, which minimizes the amount of backfilling and grading that would be necessary to return them to a satisfactory

contour. Caterpillar D10R dozers were selected as the most cost-efficient equipment, given the average distances calculated. These push distances and volume calculations for the roadways are based upon typical cross-sectional areas. These areas were applied to projected road lengths during the worst-case year of 2023 as shown on Map M9. From these values, regrade times, as shown in Table A-6, were calculated. Costs were also included for ripping haulroads using a material seismic velocity of 5000 fps.

Trapper is careful not to introduce materials on roads that will require removal at a later date. That is specifically why the use of ash on haul roads has not been pursued. Roads are constructed of earthen fill and sub-base material with gravel on top. Scoria may also be used if available. These inert materials are easily graded during reclamation, covered with topsoil, and do not adversely affect the growth of vegetation. Post mining land use requirements are not compromised.

Drainages affected by road fills include Far East Buzzard, Coyote, No-Name, Johnson, West Pyeatt, Middle Pyeatt, East Pyeatt, Grouse, Sage, Oak, Flume and Deal.

1.4.1.3 Impoundment Regrading

Calculation of regrade times for existing and future impoundments is shown in Table A-7. Impoundment volume calculations are shown in Table A-7 (1-2) of Appendix A. Many of the impoundments were approved as permanent structures by the Division. As a result, they will be left in place. Impoundments requiring reclamation include Far East Buzzard; Coyote; Middle Pyeatt 1, 2, and 3; Sage, West Horse, Deal 1 and 2; Jeffway 1 and 2; and Deacon 1 and 2.

The earthen impoundments would be graded with dozers, filling back the areas from which the material had been previously removed. Caterpillar D10T dozers equipped with a semi-U blade were used to develop cost data and productivity. This regrading would establish the approximate original contours in the affected areas.

1.4.2 Topsoiling

After regrading, topsoil from previously established stockpiles would be placed on all disturbed areas, except for such minor disturbances as light duty access roads, where topsoil was never removed. Topsoil replacement costs are summarized in Table A-9. Productivity and cost values are for Caterpillar 637G scrapers, and a Caterpillar 5130 excavator with Caterpillar 777F trucks. These equipment types, and particular models, were selected as a cost-efficient means of loading, transporting, and uniformly spreading the topsoil. **TALPAC** software was used to determine scraper and truck/Excavator production per hour. The areas requiring topsoil replacement would include all active, inactive, and abandoned pits, and their associated roadways, impoundments, and the industrial complex area.

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Map M10B illustrates topsoil removal and replacement activities for each year of the permit term, including the worst-case year of 2023. This map is the basis for pit disturbance areas. The industrial complex area, and other topsoil replacement areas were calculated from mine workings maps.

A topsoil replacement area for roadways was calculated for roadways lengths as shown on Map M9 and roadway disturbance widths.

For each of the topsoil replacement areas, a typical spread point location was established from which average haul distances and grades were determined based upon their locations

and the permanent stockpile locations. Table A-10 summarizes the results of each haul route. **TALPAC** software was used to calculate production rates. The total amount of topsoil required to replace all disturbance during worst case bond year 2023 is 3,671,312 cubic yards. Output from **TALPAC** is included in Appendix A.

Map M6, Bond Worst Case Year, 2023, shows the disturbed area, topsoil pile locations, the location of final cuts, and regrade cross-section locations.

1.4.3 Facilities Removal

The estimate for the cost of facilities removal is presented in Table A-12 of Appendix A. This estimate was generated by applying unit costs for demolition work, as referenced in bond calculations generated by DRMS. The major demolition costs are associated with the buildings. These estimates are broken out to reflect structure demolition, concrete removal both for flatwork and footings, and material disposal.

The costs for miscellaneous items were generated by applying unit costs supplied by DRMS' RN8 (Sept/2022) bond calculation.

The operation of the industrial waste pond is described in Section 4.3.2.2 and is not expected to require more than a minimal effort at the time of reclamation.

1.4.4 Revegetation

All Areas where topsoil had been placed back over disturbed ground would require the establishment of permanent vegetation in order to prevent erosion and make the land productive as either cropland or rangeland (refer to Section 3.6). Table A-11 summarizes the calculation of a total revegetation cost for each post-mining land use by areas as based upon total estimated costs per acre and the number of affected acres.

The costs per acre are detailed in the PR11 bond calculation according to equipment production costs, material costs, and estimated operating rates for each land use. The equipment costs were based on equipment types selected by DRMS, which are similar to the equipment presently being utilized at Trapper Mine for reclamation work.

1.4.5 Miscellaneous Costs

Various miscellaneous costs are addressed in Appendix A. A summary of these costs is shown in Table A-13.