

Freeport-McMoRan Chino Mines Company
P.O. Box 10
Bayard, NM 88023

February 18, 2015

Certified Mail #70133020000181686077
Return Receipt Requested

Mr. Chris Eustice
Permit Lead
Mining Act Reclamation Program
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Eustice:

Re: Proposed 3A Stockpile, Modification 14-2 to Permit No. GR009RE

Freeport-McMoRan Chino Mines Company (Chino) is in receipt of your letter dated November 14, 2014 providing the Mining and Mineral Department (MMD) and other state agencies' comments on the proposed 3A Stockpile. Chino submits the following information below in response to each of MMD's comments and comments from other state agencies. The responses below clarify and supplement information submitted with Chino's application dated July 10, 2014 to modify Permit No. GR009RE.

MMD Comments

1. Revision 01-1 to Permit No. GR009RE approves the use of Kneeling Nun rhyolite, or other approved cover material, as cover material for the stockpiles at the Chino Mine. Revision 01-1 provides for the demonstration that alternate cover material(s) will meet MMD requirements through the test plot studies. The "leach cap" material has been proposed by Chino as an alternate cover material. The suitability of the leach cap, in combination with Kneeling Nun rhyolite, or as a separate material, is currently undergoing evaluation in the test plot studies. Therefore, the use of leach cap as cover material, or combination of leach cap with other materials, has not been approved for use as cover at the Chino mine. Ultimately, the use of this material, and the application of this material, will be contingent upon the outcome of the test plots. Please explain how materials to be used as cover on the 3A stockpile compare with materials currently being examined in the test plot program.

Chino currently has two borrow material stockpiles with a significant volume of available material, the Upper South and the STS2 Stockpiles. Both areas have been approved by MMD and NMED for the placement of borrow material, which is composed of Kneeling Nun Tuff and leach cap materials. The leach cap meets the guidelines specified in the July 7, 2006 *Materials Handling Plan - South Pit Area*. The borrow material placed in both Stockpiles comes from nearly identical areas in the Santa Rita Mine called the south layback. The younger Tuff overlies the leach cap except near erosional features where both rock types can occur at generally the same elevation; thus these materials are mixed together during mining. They are also mixed when delivery to the stockpile comes from more than one shovel face. Therefore, the resulting

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Stockpile materials are a heterogeneous mixture of both material types. The materials from both Stockpiles are comparable to the materials being evaluated on the Chino test plots. Chino is currently proposing to use cover material from the Upper South Stockpile, which is identified in Permit GR009RE, Condition E.2.c) as a borrow area, to reclaim the 3A Stockpile.

2. Please explain what contingency plan is available if the proposed cover material proves to be unresponsive of a self-sustaining ecosystem, via the test plot program.

Chino has been testing cover material composed of a mixture of Kneeling Nun rhyolite and leach cap, composed of the Colorado Formation (sandstone, siltstone and shale), granodiorite to quartz monzonite stock, and dikes from the south layback of the Santa Rita Mine since the test plots were constructed and seeded in the fall of 2007. The cover material supports a diversity of vegetation. As of 2012, 88 plant species were identified on the test plots. There have also been several sightings of wildlife including birds, reptiles, rabbits and deer. In addition, the reclamation materials are generally stable. On the 3:1 300 ft. long inter-bench test plots some erosion rills have developed past the 200 ft. mark. The reclamation cost estimate shows stockpile outcrops graded to 3:1 will be equal to or less than 200 ft. long. The financial assurance estimate in the site-wide Chino Closure/Close-out Plan (CCP) includes a cost estimate for reclamation maintenance. Therefore, the contingency plan is built into the cost estimate for financial assurance.

3. Assuming that blended Kneeling Nun rhyolite and leach cap is approved as suitable cover material at the conclusion of the test plot studies, please explain how Kneeling Nun and leach cap cover material will be handled to insure cover material, to be applied at reclamation, will have appropriate textural and chemical characteristics to be used as a store and release soil cover system. Alternatively, if this information already exists, please explain how the material to be used as cover on the Waste rock pile will meet criteria for a store and release soil cover system. Note, please include any special cover material handling needs in the cost estimate.

The best available materials for cover at Chino are overburden composed of Kneeling Nun rhyolite, the Colorado Formation (sandstone, siltstone and shale), granodiorite to quartz monzonite stock and dikes. In 2006, Chino implemented a materials handling program for identifying and segregating materials with chemical properties suitable for cover during the mining process. Details of the program were described in the *Materials Handling Plan - South Pit Area* prepared by Chino Mine Company July 7, 2006. The materials handling Plan emphasizes the avoidance of potentially acid-forming materials through a program of lab testing and management. The materials deemed suitable for cover, based on geologic and chemical characteristics, are stored in dedicated stockpiles including the Upper South and STS2 Stockpiles. This program represents the first step in the cover quality control process.

The second step in the quality control process is implemented during the excavation, hauling, and placement of the materials on reclaimed areas to ensure that the materials act as store and

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release cover. The methods that will be used for this part of the quality control process are described in *Quality Control- Standard Operating Procedure Cover Materials Hauling and Placement West Stockpile Test Plots*, which was prepared by Chino Mines Company (March 16, 2007). These methods were used in the construction of the test plots, which are considered to be successful based on the best available data. Chino intends to use methods similar to those implemented during the test plot construction process in future reclamation activities. The costs for cover material handling are adequately addressed in both the existing site-wide Chino CCP cost estimates and the cost estimates for reclamation of the 3A Stockpile. No additional handling practices are required for reclamation of the 3A Stockpile.

4. Upon reclamation, the waste rock pile is proposed to be sloped to direct surface water south into a tributary of Martin Canyon currently not directly impacted by mining activities. Please explain how the 3A waste rock pile will be reclaimed to address potential surface water and groundwater impacts to Martin Canyon.

During operations all storm water that comes in contact with the 3A Stockpile will report to the Santa Rita open pit. As described on Page 6 of the application for the 3A Stockpile, upon reclamation only the southern portion of the proposed 3A Stockpile will be sloped to drain surface water into a tributary of Martin Canyon. The reclamation described in the CCP for the 3A will ensure that only surfaces covered with suitable cover material will drain off site and thus surface and groundwater will be protected.

5. The application should include a general description of appropriately designed stormwater drainage and diversion features, water treatment, and associated armoring, to manage a 100 year, 24-hour storm event. Please revise the application to include this description and a cost estimate to address these storm water design features.

The designs and plan proposed under this modification are consistent with the requirements of Permit GR009RE and DP-1340 as well as the newly adopted Copper Mine Rule (NMAC 20.6.7). Surface water control on the reclaimed slopes will be achieved using armored terrace bench channels and downdrains sized to handle a 100 year 24-hour storm event. Construction of the Stockpile and ultimate reclamation will result in a lower site-wide water treatment volume compared to the current CCP because at closure stormwater can ultimately be released south of the Stockpile. In the current approved CCP, all water reports to the Santa Rita open pit. Figures 5, 6 and 7 in the referenced application illustrate the typical conceptual designs for the slope configuration, channels, and downdrains including rip rap. The application shows the full build out of the Stockpile with the associated FA. Detailed designs would be submitted prior to actual reclamation activities based upon the final Stockpile design configuration. The designs submitted with the application support the reclamation cost estimate in the application. Table 8 of the application includes a cost estimate for these design features.

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An updated Figure 7, dated December 16, 2014, is included with this response indicating the down stream direction of channel flows for the reclaimed Stockpile.

6. Please adjust the cost estimate accordingly for the placement of the stored organic material and topsoil during reclamation, of the 3A waste rock pile, if applicable.

Chino has evaluated the possibility of salvaging topsoil from the 3A Stockpile location for future reclamation. However, this area has no salvageable top soil. The topography is very rugged consisting of mostly outcrop and ledges composed on Kneeling Nun rhyolite. It will be neither safe nor practicable to salvage topsoil. Chino thanks the MMD and NMED staff for taking the time on October 23, 2014 to review the proposed Stockpile location and to discuss this issue while on site.

7. Please include in the cost estimate the capital costs needed to remove any infrastructure and the utilities associated with the operations of the 3A waste rock pile.

No additional costs are needed for infrastructure removal. This CCP includes design and costs for the 3A Stockpile. Before the Stockpile reaches full development, all of the infrastructure and any utilities within the 3A footprint will have been removed.

8. Please include in the cost estimate the costs needed to perform post-reclamation operations and maintenance.

Post-reclamation operational and maintenance (O&M) cost estimates are included in the Chino site-wide approved CCP. The approved CCP includes a cost estimate to support over 20 personnel involved in post-reclamation activities and is structured to cover the entire mine site, including the area of the 3A Reservoir. Prior to this proposal a process water reservoir covered much of this area and reclamation was included in the approved CCP. The marginal acreage addition due to the 3A Stockpile represents a small addition to the total area of reclamation. Therefore, additional and specific O&M costs for this area would be redundant with what is already approved.

9. On page 7 of the application in the section titled "Financial Assurance", it states that the financial assurance could be adjusted during the future renewal of the site-wide closure closeout plan. MMD agrees with this statement, however, for this specific case, and in accordance with 19.1012.1201.A NMAC, Chino shall provide a financial assurance proposal, for the reclamation of the 3A waste rock pile, to MMD following MMD's determination that the permit modification is technically approvable, but prior to the permit modification approval.

Chino agrees with this comment. In order to reduce the number of financial assurance changes and related permit actions needed to accomplish these adjustments to financial assurance, Chino has requested and MMD has agreed to withhold the remaining ministerial acts to complete the partial release of financial assurance under Modifications 13-1 and 14-3: namely, submission

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and execution of the Certificate of Face Amount Adjustment and issuance of Modification 13-1 and 14-3. In recognition that Chino has submitted approvable applications for the partial release of financial assurance, MMD will acknowledge that the amount of the partial financial assurance releases will be retained in the guarantee and available to cover some or all of the additional financial assurance needed for the Stockpile to be reclaimed at the 3A Reservoir location. Therefore upon agreement with MMD, Chino will adjust the FA cost estimate to account for the 3A Stockpile.

10. On the Reclamation Summary page of the cost estimate, under the category of Direct Costs, there is a line item titled "Other": please provide a description of the task. Is this task for special handling needs (e.g., screening) of the cover material?

Table 8 of the application provides the details for "Other" costs. These costs include the installation of down drains and riprap, grading of benches, and channel excavation. As discussed above in the response to Comment #3, no additional handling costs are required for the proposed cover material in order to reclaim the 3A Stockpile.

11. The volume of cover material needed appears to have been calculated for the 210 acre footprint of the waste rock stockpile. Please provide in the cost estimate the volume of cover material needed for a trapezoidal-shaped pile with a 210 acre footprint.

The proposed reclamation costs are based upon an area of 210 acres as calculated from the figures submitted with the application for the 3A Stockpile. Using a trapezoidal-shaped pile would not result in a meaningful change in the surface area, because the calculation includes an estimated area for both the top and outslope surfaces. This acreage calculation is consistent with all CCP estimates. Table 6 ("Grading Summary") of the referenced application includes estimated costs for the outslope areas. These costs reflect grading and all push down distances for the Stockpile outslopes.

12. The cost estimate needs to be updated to include indirect costs, selected equipment, associated production and performance factors, and cycle times that were approved in the February 11, 2002 site-wide cost estimate. Additionally, identify the location of the stockpile from where the proposed cover material will be taken.

Enclosed are updated cost tables, Tables 1-8, indicating a total estimated closure cost of \$5,689,555 versus the \$5,585,448 submitted with the application dated July 10, 2014. These costs reflect indirect costs (see Table 1), as well as the costs to obtain cover material from the Upper South Stockpile.

13. The cover material haul distance needs to be adjusted, and/or checked, to reflect the actual haul distance as illustrated on Figure 1 of the PAP.

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The hauling sheet shows the total haul distance of 5,600 hundred feet broken into three segments of 4,600, 300, and 500 feet.

Other State Agency Comments (see attached documents)

1. Archeological surveys were conducted over most of the stockpile area in 1996 and 1997, but it appears that a small area between the two survey areas was not covered. Please address the Department of Cultural Affairs comments on the need to update the archeology survey in relation to this proposed disturbance from expansion of the 3A waste rock pile.

Chino will work with the Historic Preservation Division to meet all regulatory obligations in accordance with State Statute.

2. Please address the comments from Office of the State Engineer [NMOSE] concerning the plugging and replacement of monitoring wells, and the status of Chino's application for permit to Alter or Rehabilitate a Dam or Reservoir.

One monitoring well associated with the 3A Reservoir has been plugged and abandoned. Chino has received approval from the NMOSE to alter the 3A Reservoir as provided for under NMOSE Permit No. D-534 and communicated in a memorandum to Chino on August 21, 2014. Chino will adhere to all requirements set forth by NMOSE.

Sincerely,



Lynn Lande, Chief Environmental Engineer
Reclamation Services

LAL: kes
c: Kurt Vollbrecht, NMED
Attachments
20150218-004

Reclamation Summary

3A Stockpile
12/17/2014
Table 1

COPY

Direct Costs

Earthmoving		\$	3,515,616
Vegetation	100%	\$	238,713
Other		\$	890,205
Subtotal, Direct Costs		\$	4,644,535

Indirect Costs

Mobilization and Demobilization	1.0%	\$	46,445
Contingencies	2.0%	\$	92,891
Engineering Redesign Fee	2.5%	\$	116,113
Contractor Profit and overhead	15.0%	\$	696,680
Project Management Fee	2.0%	\$	92,891
State Procurement Cost	0.0%	\$	-
Indirect Percentage Sum =	22.5%		
Subtotal, Indirect Costs		\$	1,045,020

TOTAL COST

\$ **5,689,555**

Data Sources:

MMD. 1996. Closeout Plan Guidelines for Existing Mines, Mining Act Reclamation Bureau Mining and Minerals Division
New Mexico Energy, Minerals and Natural Resources Department. April 30, 1996.

OSM. 2000. U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement
Handbook for Calculation of Reclamation Bond Amounts. April 5, 2000.

Notes:

1) Indirect costs are based on the guidance available from MMD (1996) and OSM (2000).

Reclamation Summary

**Table 2
3A Stockpile**

Description	Location 1	Location 2	Area (AC)	Cover Depth (in)	Bank Volume (bcy)	Swell Factor (%)	Loose Volume (lcy)
Dozer Assist	3A			-	1,100,000	0%	1,100,000
Load Cover Material	Borrow Area/Upper South			-	1,100,000	0%	1,100,000
Haul Cover Material	Borrow Area/Upper South	3A		-	1,100,000	0%	1,100,000
Grade Surface	3A		210	-	3,100,000	0%	3,100,000
Grade Cover Material	3A		210	36	1,100,000	0%	1,100,000

Grading

Table 3
3A Stockpile

Task Description	Location 1	Equipment	Volume (cy)	Productivity (cy/hr)	Task Time (hours)	Material	Grade Factor	Soil Weight (lb/cy)	Production Method/ Blade	Work Hour (min/hr)	Visibility	Elevation	Direct Drive Trans.	Grade (%)	Operator	Maximum Push Distance (feet)	Normal Production (cy/hr)
Grade Surface	3A	D11R	3,100,000	3,038	1020	1.2	1.58	2900	1.2	50	1	1	1	-29	1	150	2021
Grade Cover Material	3A	D11R	1,100,000	2,003	549	1.2	1.58	3300	1.2	50	1	1	1	-29	0.75	150	2021

Hauling

Table 4
3A Stockpile

Task Description	Location 1	Location 2	Equipment	Volume (cy)	PERFORMANCE FACTORS																	
					Truck Cycle Time (min)	Optimum No. of Trucks	Productivity (cy/hr)	Task Time (hrs)	Truck Capacity (cy)	Heaped Capacity (cy)	Loader Cycles per Truck	Total Haul Distance	**Haul Distance Segment 1	**Haul Distance Segment 2	**Haul Distance Segment 3	**Haul Grade Segment 1	**Haul Grade Segment 2	**Haul Grade Segment 3	Rolling Resistance	Haul Distance Segment 1	Haul Distance Segment 2	Haul Distance Segment 3
Haul Cover Material Borrow Area			3A 777F	1,100,000	15.7	5	1,115	1,021	54.8	78.8	5	5,600	4,800	300	500	10.0%	1.0%	5.0%	2.5%	1,463	91	152
					Haul Effective Grade Segment	Haul Effective Grade Segment	Haul Effective Grade Segment 3	Return Effective Grade Segment	Return Effective Grade Segment	Return Effective Grade Segment	Haul Time	Return Time	Loading Time	Load/Maneuver Time	Dump/Maneuver Time	Work Hour	Travel Time Loaded Segment 1	Travel Time Loaded Segment 2	Travel Time Loaded Segment 3	Travel Time Empty Segment 1	Travel Time Empty Segment 2	Travel Time Empty Segment 3
					13%	4%	8%	0%	2%	0%	9.1	1.5	3.3	0.7	1.1	50	0.00578	0.00167	0.00337	0.00090	0.00087	0.00090

Loader

Task Description Location 1

Location 2	Equipment	Volume (cy)	Net Bucket Capacity (cy)	Loader Cycle Time (min)	Productivity (cy/hr)	Task Time (hours)	Heaped Bucket Capacity (cy)	Bucket Fill Factor	Haul Distance (feet)	Haul Grade (%)	Rolling Resistant (%)	Load Bucket (min)	Swing Loaded (min)	Dump Bucket (min)	Table 5		Work Hour (min/hr)	
															Swing Empty (min)			
3A	992K	1,100,000	14.0	0.65	1,077	1021	16	0.875	NA	NA	NA	NA	NA	NA	NA	NA	NA	50

Stockpile Areas

Load Cover Material Borrow Area

Grading Summary

Summary Calculation of Earthmoving Costs

**Table 6
3A Stockpile**

Equipment Type	Task	Location 1	Location 2	Owning and Operating Cost (\$/hr)	Fuel Consumption (gal/hr)	Fuel Consumption (gal)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Total Cost (\$)
Dozers-Earthmoving										
D11R	Regrade Outslopes	3A	Outslopes	\$ 421.80	29.75	30353	\$ 47.70	1	1020.3	\$ 479,019
D11R	Dozer Assist	Borrow Area	3A Outslopes	\$ 421.80	29.75	30388	\$ 47.70	1	1021.4	\$ 479,561
Dozers-Grading										
D11R	Grade cover material	3A Outslopes	-	\$ 421.80	29.75	16341	\$ 47.70	1	549.3	\$ 257,893
Loaders										
992K	Load cover material	Borrow Area	3A Outslopes	\$ 367.14	25.632	26181	\$ 47.84	1	1021.4	\$ 423,872
Trucks										
777F	Haul cover material	Borrow Area	3A Outslopes	\$ 284.62	18.76	95810	\$ 42.93	5	5107.1	\$ 1,672,845
Water Truck and Grader										
	* Off-Hwy Water Tanker Truck	3A		\$ 169.93	15.345	7837	\$ 25.77	1	510.7	\$ 99,947
	* Motor Grader	3A		\$ 152.96	9.504	4854	\$ 47.70	1	510.7	\$ 102,480
									3A	\$ 3,515,616

*Assume there is a water truck and motor grader running 1/2 of the shift during hauling operations.

Vegetation Costs

**Table 7
3A Stockpile**

Description:

Includes scarifying, discing, rangeland drill seeding, mulching, crimping, and daily per diem

Stockpile Areas

Unit or Disturbance	(acres)	Unit Cost (\$/acre)	Subtotal Cost (\$)
3A	210	\$ 1,137	\$ 238,713

Other

Table 8
3A Stockpile

Other Reclamation Activity Costs

Item	Activity	Quantity	Unit	Unit Cost (\$/unit)	Direct Item Cost (\$)	Reference	Means Line Item	Means Page	Description
Down drains									
3A	Down Drain Length	2,800	ft	\$ 8.01	\$ 22,428				See Note 3 for unit cost
3A	Down Drain Filter	1,960	cy	\$ 4.34	\$ 8,503	Means	321123.23-0301		298 Base Course Drainage Layers, C1
3A	Down Drain Riprap (Processed), Haul	11,500	cy	\$ 8.43	\$ 96,963	Means	G1030 150 6600		465 Load & Haul rock, 3-cy loader, 12
3A	Down Drain Riprap (processed), Backfill	11,500	cy	\$ 0.96	\$ 11,065	Means	312323.14-5220		235 Gravel backfill...see note 2 for ful
Bench Grading									
3A	Bench Grading	33,200	ft	\$ 1.69	\$ 56,108				See Note 4 for full description See Note 4 for full description
Channel Excavation									
3A	Outslope Terrace Channels	33,200	ft	\$ 3.37	\$ 111,895				Excavation...see note 1 for full de
3A	Top Channels	1,350	ft	\$ 8.99	\$ 12,137				Excavation...see note 1 for full de
Riprap & Gravel									
3A	Outslope Channel Riprap (Processed), Haul	5,780	cy	\$ 8.43	\$ 48,734	Means	G1030 150 6600		465 Load & Haul rock, 3-cy loader, 12
3A	Outslope Channel Gravel, Haul	17,210	cy	\$ 8.43	\$ 145,107	Means	G1030 150 6600		465 Load & Haul rock, 3-cy loader, 12
3A	Top Channel Riprap (processed), Haul	2,000	cy	\$ 8.43	\$ 16,863	Means	G1030 150 6600		465 Load & Haul rock, 3-cy loader, 12
3A	Top Channel Gravel, Haul	1,020	cy	\$ 8.43	\$ 8,600	Means	G1030 150 6600		465 Load & Haul rock, 3-cy loader, 12
3A	Outslope Channel Riprap (processed), Backfill	5,780	cy	\$ 0.96	\$ 5,561	Means	312323.14-5220		235 Gravel backfill...see note 2 for ful
3A	Top Channel Riprap, (processed) Backfill	2,000	cy	\$ 0.96	\$ 1,924	Means	312323.14-5220		235 Gravel backfill...see note 2 for ful
3A	Top Channel Gravel, Backfill	1,020	cy	\$ 0.96	\$ 981	Means	312323.14-5220		235 Gravel backfill...see note 2 for ful
3A	Riprap production (processed)	23,500	cy	\$ 14.61	\$ 343,335				
				3A	\$ 890,205				
				Direct Cost Total	\$ 890,205				

Data Sources: RS Means Heavy Construction Cost Data (26th Annual Edition 2012)
 Location adjustment: New Mexico 880 Las Cruces
 Location adjustment = 0.844

Description Notes:

- 1) Excavate waste material with D11R, 175-foot excavation, 200-foot lateral waste push. Finish grade with D6R, 175-foot typical push distance, unit vol
- 2) Gravel Backfill, 300 hp dozer & compactors, 150' haul, 6 lifts, 4 passes
- 3) Excavate and waste material on slopes with D11R, 175-foot downslope excavation, 200-foot lateral waste push. Finish grade with D6T, 175-foot typic
- 4) Finish grade channel benches using D9R. Three passes per bench, 1 MPH operating speed. Grading benches 31 ft wide, 9.26 cy cut-to-fill/ft of benc

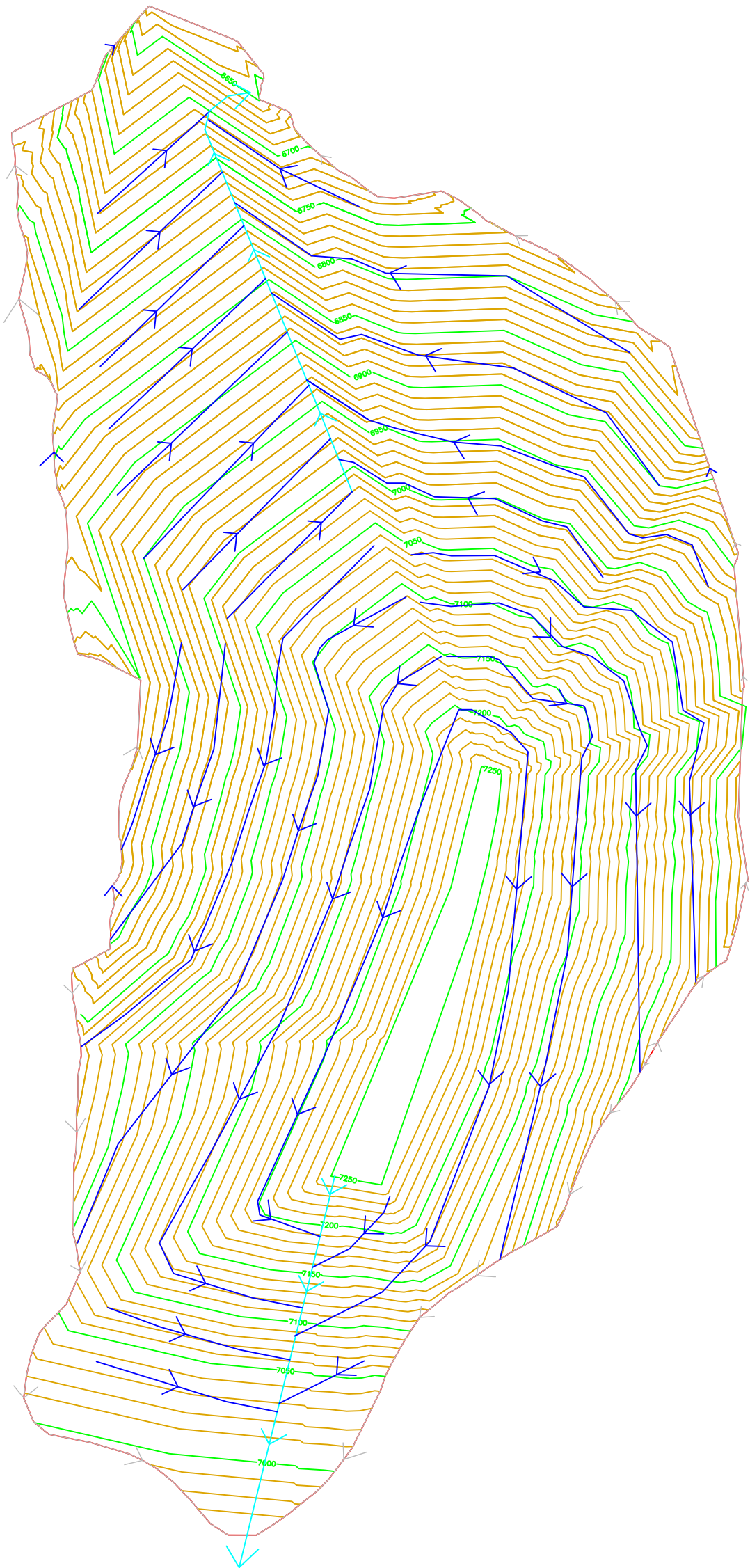
rushed 1 1/2", Compacted to 4" deep
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me per LF. Uses Operator Factor = 0.75. See Appendix B 8.

al push distance, unit volume per LF. Uses Operator Factor = 0.75 &. Appendix B 8
h Appendix B 8.



0 500 Feet

LEGEND:

- MAJOR CONTOUR (50' INTERVAL)
- MINOR CONTOUR (10' INTERVAL)
- ← TYPICAL DOWN CHUTE CHANNEL
- ← TYPICAL SIDE SLOPE CHANNEL
- ← TYPICAL PERIMETER/TOE CHANNEL
- APPROXIMATE STOCKPILE FOOTPRINT

FREEPORT-McMORAN COPPER & GOLD	
Conceptual 3A Reclamation Drainage Plan	
Scale: As Noted	Date: 12-16-2014
Dept. Reclamation	
Drawn By: DHA	Checked By: LL

Figure 7