

### **3.5.3.1 L-Pit and Ash Pit Variance from Approximate Original Contour**

The final cut of the L Pit and the Ash Pit will be backfilled and graded using the methodologies outlined in Section 3.5 but with a final graded configuration that will vary from approximate original contour or AOC. The projected post-mining topography of the L Pit is shown on Map M12, Postmining Topography, Sheet 3. The projected post-mining topography of the Ash pit is shown on Map M12, Postmining Topography Sheet 2. Cross sections of the pre-mining and post-mining topography are shown on Map M14A Postmining Cross Sections, Sheet 1 for the L-Pit and Sheet 3 for the Ash Pit.

Appendix B provides detailed information on the benefits of backfilling and grading of the L Pit and Ash Pit to gentler slopes for both long-term stability and watershed improvement.

Permit C-1981-010 Technical Revision 69 cautioned that steep slopes at the Trapper Mine could potentially be anything over 14°, depending on hydrologic or geotechnical conditions. The L Pit overall pre-mining topography exhibited extensive slopes of 16° or steeper, with some slopes as steep as 26° in the southern portion of the L Pit area. Post-mining the slopes will range from 4 to 14° and will blend with the surrounding topography. The post-mining backfill configuration for the L Pit will decrease the depth of spoil placed at the head of the slope and increase the depth of spoil placed at the toe of the slope to act as a buttress to any movement. Overall surface topography that is less steep will also increase the stability of the backfilled spoil. The stability analysis (App. B, Attachment 1,) showed that the post-mining stability for the AOC variance improved Safety Factors when compared to restoring the L Pit to AOC.

Further, post-mining drainage density and slope have been designed to approximate the pre-mining drainage distribution. The AOC variance drainage design will result in overall watershed improvement. For the L Pit, the drainage area for Flume Gulch, which is the major drainage associated with the L Pit, will increase by approximately 236.8 acres or 12.6%. The post-mining drainage densities will decrease slightly from 3.8 mi/mi<sup>2</sup> to 3.6mi/mi<sup>2</sup>. The overall drainage gradient will decrease from 10.6% to 10.3%. Sediment yield will decrease from 1.13 tons/acre to 0.74 tons/acre under the proposed post-mining configuration.

The table 3.5-1 summarizes the pre- and post-mining characteristics for the L Pit.

**Table 3.5-1 Pre- and Post-Mining Characteristics for the L Pit**

Condition	Acreage	Slopes (°)	Safety Factors	Drainage Density (mi/mi <sup>2</sup> )	Gradient (%)	Sediment Yield Per Acre (tons)
Pre-Mining	1,877.5	4-26	1.3 to 1.5	3.8	10.6	1.13
Post-Mining	2,114.3	4-14	1.58 to 2.14	3.6	10.3	0.74

The Ash Pit area overall pre-mining topography had slopes between 4 and 23°, with the steeper slopes in the northern portion of the pit. Post-mining the slopes will range from 4 to 14° and will blend with the surrounding topography.

The post-mining stability analysis for the Ash Pit showed that the AOC variance will significantly improve Safety Factors when compared to restoring the Ash Pit to AOC.

Further, post-mining drainages will result in overall watershed improvements. For the Ash Pit, the drainage area for Johnson Gulch, which is the major drainage associated with the Ash Pit, will increase by approximately 3 acres. The pre- and post-mining drainage densities will change slightly, and the overall drainage gradient will decrease 1.5%. Sediment yield will decrease from 1.03 tons/acre to 0.56 tons/acre under the proposed post-mining configuration.

Table 3.5-2 summarizes the pre- and post-mining characteristics for the Ash Pit.

**Table 3.5-2 Pre- and Post-Mining Characteristics for the Ash Pit**

Condition	Acreage	Slopes (°)	Safety Factors	Drainage Density (mi/mi <sup>2</sup> )	Gradient (%)	Sediment Yield Per Acre (tons)
Pre-Mining	1,432	4-23	1.36	3.1	9.3	1.03
Post-Mining	1,435	4-14	1.75	3.2	7.8	0.56

There would not be any significant changes in the post-mining watershed areas for the L Pit or the Ash Pit that would impact seasonal or flood flows from the post-mining reclaimed areas or adversely affect surrounding ecology or any existing or planned use of surface water or groundwater.

Reclaiming to slopes that are not as steep as pre-mining slopes will improve the post-mining land use of rangeland by allowing for better cattle access and distribution of grazing. In steeper areas cattle typically congregate on less steep portions of slopes possibly resulting in over-utilization of these areas. Reducing the overall steepness of the reclaimed slopes will provide for more dispersed grazing and better resource utilization for post-mine land use.

Landowners within the variance area have approved the proposed changes in post-mining topography. Landowner approval letters are included in Appendix B; Attachment 3.