

Bloomington Canyon Mine
Preliminary Assessment Report Addendum
December 2009

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Bear Lake County
State of Idaho



Department of Environmental Quality

July 2008

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1. Introduction

Preliminary Assessments (PA) of the Bloomington Canyon Mine were conducted in 2002 (IDEQ, 2004a) and October 2007 (IDEQ, 2007) to ensure all historic mining sites within the Idaho Phosphate Mining Resource Area have been inspected and evaluated in accordance with the goals and objectives outline in the *Area Wide Risk Management Plan* (IDEQ, 2004b). This addendum to the October 2007 report has been prepared to present the findings of the June 2008 site visit and to refine reclamation recommendations made by the Idaho Department of Environmental Quality (IDEQ) in 2007.

1.1. Inspection Findings

The IDEQ inspection team visited the Bloomington Canyon Mine on June 3, 2008 as a follow-up to the October 2007 PA (IDEQ, 2007). No samples were collected during the 2008 site visit. Visual inspection of the site confirmed the 2002 interagency team findings. The Bloomington Canyon Mine area appears to have changed little over the past 6-years, based on a comparison of the 2002 photographs with 2008 site conditions. The site is strongly eroded with the eastern portion of the waste dump sparsely vegetated and the western, black shale, portion almost completely denuded. Black shale from the waste dump is evident on the road below the mine and likely extends the 100 feet or so to Bloomington Creek. The 1974 and 1975 tunnels remain partially open and accessible to human entry. A well maintained, bared wire fence is in-place at the county road property boundary that will keep casual observers/recreational users of the mine.

Photographs taken during the 2008 site visit and brief explanations of each photograph are included in the Appendix.

1.2. Recommendations

The 2002 interagency inspection team and the 2007 PA recommended:

- Further site investigation,
- Waste consolidation erosion controls,
- Closing adits and openings on the site,
- Determine extent of contamination to Bloomington Creek, and
- Re-contour and re-vegetate the waste dump where nature vegetations is not present and re-working of the berm at the toe of the waste dump to prevent waste rock from reaching the road.

After a review of the prior recommendations and the site visit IDEQ has refined the above recommendation to:

- Re-grade and dissect the upper surface of the mine dump from the brow to the hillside to drain towards and through two armored channels, one on each side of the dump. Figure 1 shows the Blooming Canyon Mine site and recommended best management practices (BMPs).
- Construct two armored channels and four sediment basins, one on the west side of the dump and one at the toe.

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- Place clean gravel top dressing on that part of the county road effected by the erosion of the waste dump.
- No attempt to re-grade the face of the waste dump should be made, as it is very likely that disturbing the surface cohesion of the slope would cause significant short term releases of waste rock to reclaimed areas below and eventually Bloomington Creek. However, use of hydromulches containing tacifiers may expedite natural vegetation of the dumps face.

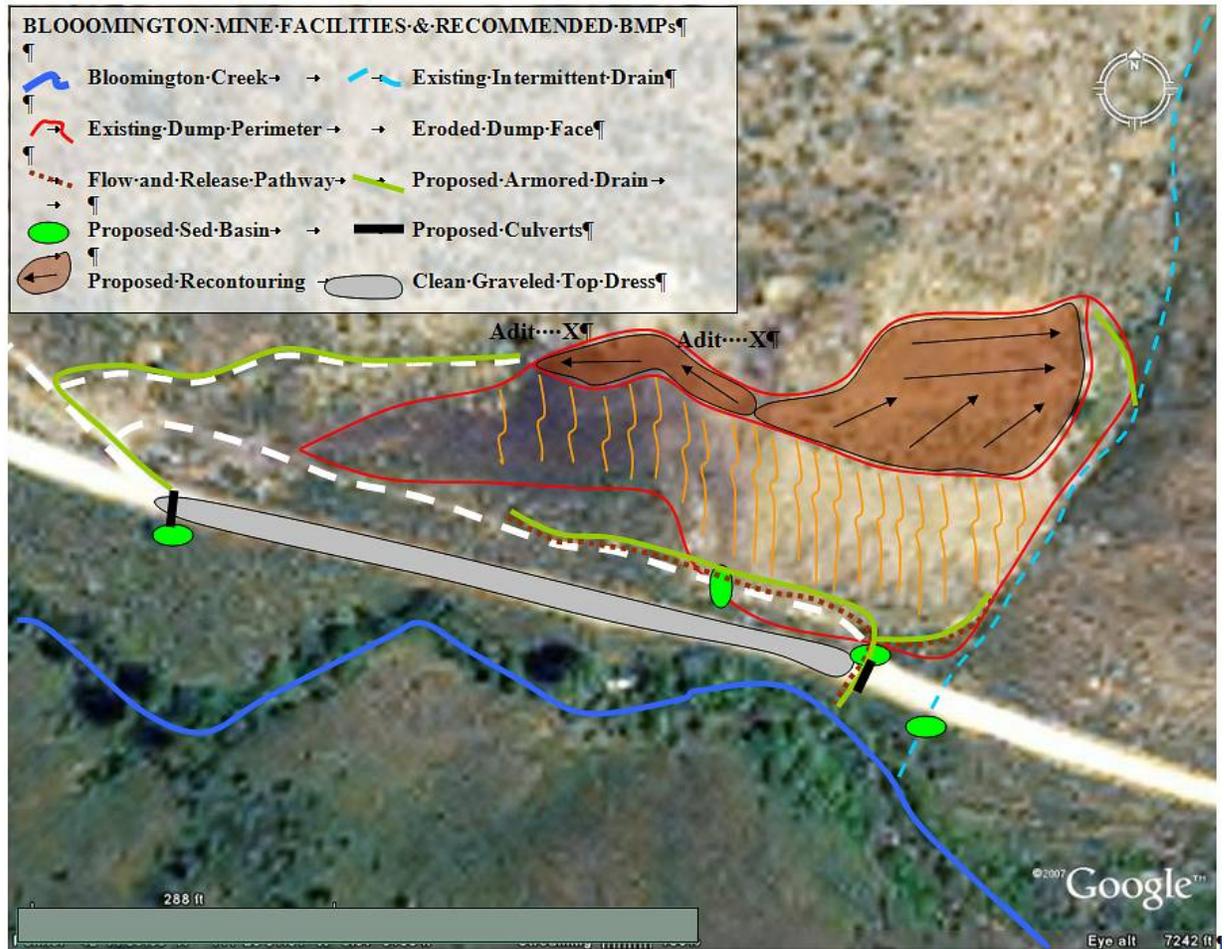


Figure 1. Bloomington Canyon Mine Site with Recommended Best Management Practices.

2. Reference:

Idaho Department of Environmental Quality, 2004a. Orphan Mine Site Preliminary Assessment Screening Report. Prepared jointly by DEQ, Idaho Department of Lands, U.S. Bureau of Land Management, and the U.S. Forest Service. Available URL: http://giscenter-ims.isu.edu/SISP/Area_Wide_Reports.html

Idaho Department of Environmental Quality, 2004b. Area Wide Risk Management Plan: Removal Action Goals And Objectives, And Action Levels For Addressing Releases And Impacts From Historic Phosphate Mining Operations In Southeast Idaho. Available URL: http://giscenter-ims.isu.edu/SISP/Area_Wide_Reports.html

Idaho Department of Environmental Quality, 2007. Bloomington Canyon Mine Preliminary Assessment Report, Bear Lake County, State of Idaho. Submitted to: U.S. Environmental Protection Agency, Region 10.

Attachment

**Bloomington Canyon Mine
Site Conditions and Pictures
June 3, 2008**



The Bloomington Canyon Mine or remnants, thereof, consist primarily of a waste dump and two mostly collapsed adits. The toe of the waste dump encroaches on the Bloomington Canyon County Road across which is the perennial Bloomington Creek.



Looking up from the toe to the brow of the dump one will observe deeply incised rills in the face of the dump which run from the brow to a bench just above (approximately 15') and parallel to the county road.



The bench noted is an extension of a historic access road. Rapid runoff from the dump face to this bench appears to be one plausible reason that vegetation has not established as lush of a cover here as elsewhere on the mine site. It may be possible to significantly reduce surface runoff velocities by recontouring and “roughing” up the lower portions of the dump, developing some swales on this bench, amending soils with large wood chips, and revegetating with both native grasses and shrubs.



Sediment laden waters shed from the dump face confluence on the bench and are focused on one relief channel from the bench to the roadway below and then across to Bloomington Creek. Observations made on June 3, led DEQ to believe that there are two primary release mechanisms for mine wastes from the dump to Bloomington Creek. The first occurs during rapid runoff in the spring or during storm events when surface water flows carry the wastes from the dump across the road and directly into the river. The second occurs when residual deposits left by spring runoff and storm events on the road are bladed off of the road onto the fill slope between the road and the creek.



IDEQ's site inspection team climbed up from the bench to the upper surface of the dump along what appeared to be a fairly stable, well vegetated and coarsely armored ephemeral drain. Although this drain may not be well suited to carry all of the runoff from the dump surface, it seems that it would be an excellent model of size and materials that should be used for constructed drains from the lower bench to Bloomington Creek, and the west side of the dump to Bloomington Creek. With this in mind, it appeared logical that the upper surface of the mine dump from brow to hillside should be regraded and dissected to drain towards and through two armored channels, the one that exists on the east side of the dump, and another which needs to be constructed on the west side of the dump.



Looking from the brow of the dump down to the bench above the toe of the dump, IDEQ observed very sparse vegetation. The ineffectiveness of the vegetation to establish itself is likely to have resulted from high surface water flow velocities of runoff, wind, and the smooth surface of the face, which probably precludes the entrapments of the native seeds and organic debris necessary for natural re-colonization. Stimulation of vegetation by regrading the dump face, leaving a rougher surface, and amending the impacted surface with wood chips and other large woody debris may provide long term benefits for vegetation. However, it is very likely that disturbing the surface cohesion of this slope would cause significantly higher short term releases of mine waste to the reclaimed areas below and eventually Bloomington Creek. This would require some short term maintenance of the BMPs installed below. Therefore, IDEQ is recommending that no attempts are made to regrade these slopes. However, use of hydromulches containing tackifiers may expedite natural vegetation of the dump face.