Reclamation Bond Cost Summary— Bonding Proposal for LGPD #2 unpatented mining claim

In anticipation of approving the Plan of Operations for John Crowley to operate for three years on the LGPD#2 unpatented mining claim, a bond calculation has been prepared. The calculation has taken into consideration, as per the Guide for Reclamation Bond Estimation and Administration, the maximum amount of disturbance anticipated for their operations.

In order to fairly and equitably calculate the reclamation bond costs, the following assumptions have been made:

- Operator John Crowley will be following his Plan of Operations, as described.
- The Forest Service will need to complete the reclamation work on the access road, which will be done through a contractor using heavy equipment.
- Cost estimates are based on Forest Service cost estimate guides and actual contractor bid estimates.
- Costs reflect a combination of equipment/material/personnel.
- The reclamation bond for the excavations will be held by the Division or Reclamation, Mining, and Safety.
- The 2-track non-system road is estimated to be 12' wide by 5857' long or 70,284 square feet (SF). Total acreage is 1.62 acres.
- To convert bank cubic feet (BCF) to bank cubic yards (BCY), divide BCF by 27.
- To calculate loose cubic yards (LCY) from BCY, multiply BCY by the swell factor of the material (decomposed granite).
- The Swell or Bulking factor of decomposed granite is 1.46 or 46%. https://www.nrc.gov/docs/ML0807/ML080700314.pdf
- *Definition of Swell or Bulking Factor* - A cubic yard of earth measured in its natural position swells to more than a cubic yard after it is excavated. This occurs because of an increase in **voids**. Swell or Bulk is expressed as a percentage of natural volume.
- Total estimated disturbance is 1.62 acres (road).
- Water bars will be installed across access roads to minimize water erosion. 5 locations have been identified on NFS lands. Water bars will be constructed using heavy equipment.
- Crystal Creek seed mix will be used on site (recommended mix attached).
- Seeding rate is 25 lbs/ acre. For 1.62 acres (excavations + road), 41 lbs of seed will be needed. Leave No Trace standards are the basis for the reclamation work.
- Mobilization costs assume equipment will be coming from Wagner Equipment Rental, Colorado Springs, Colorado (43 miles one way).
- Direct Costs are based upon the details of the reclamation work outlined in the Plan of Operations.
- Indirect Costs are those fees and charges over and above the direct reclamation costs. Indirect costs include contingency costs for the operation, along with the costs of reclamation management (supervision), and/or administration (inspection).

Task	Task Description	Unit	Direct Costs (rounded to nearest whole number)	Indirect Costs (rounded to nearest whole number)
1	Adding water bars to non-system access road (12' wide x 5857' long) 5 water bars @ $180/ water bar	5	900.00	
2	Seed rate: 25 lbs/ acre @ 1.62 acres @ $14.50/ lb.	41 lbs.	595.00	
3	Seeding application (broadcast) cost $267.22/ acre	1.62 acres	433.00	
4	Mobilization of D6 Crawler Dozer w/ lowboy @ $8.50/mile to Lake George (carried) from Colorado Springs	43 miles	366.00	
5	Mobilization of D6 to worksite (driven) 1-mile round trip at 3 mph @ $186.47/hr.	0.3 hours	56.00	
6	Equipment removal w/lowboy @ $8.50/mile round trip to Lake George and back to Colorado Springs	43 miles	366.00	
7	Equipment removal from worksite to Lake George @ 3 mph for 1 miles @ $186.47/hour	0.3 hours	56.00	
8	Site clean-up: 1 GS5 seasonal @ $130/day (supervision)	1 day		130.00
9	Site monitoring: 1 GS5 seasonal @ $130/ day for 3 years (monitoring)	3 days		390.00
15% Indirect Costs	Forest Service administrative costs (contingency costs)			416.00
	Forest Service administrative costs (supervision and monitoring)			520.00
Total Direct Costs			2772.00	
Total Indirect Costs				936
Total Reclamation Bond				3708
Total Forest Service Bond (Rounded to)				**$3,708**

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Production costs and volumes calculated by Caitlin Woods, Civil Engineer, and Amy Titterington, Geologist, PSICC. Government Cost Estimates and contractor estimates supplied by the PSICC Engineering Group, 2019 Caterpillar Performance Handbook, and local contractors.