

Practice: 457 - Mine Shaft and Adit Closing

Scenario: #7 - Horiz Shaft -Bat Grating

Scenario Description: This scenario addresses closure of horizontal shaft underground mine openings by installing barriers, grating or fencing in order to reduce safety hazards for humans and large animals; maintain or improve access and/or habitat for wildlife, specifically bats and other small wildlife; protect cultural resources which are known to be present in the shaft. Typical install size from 40 to 150 SF per opening. For this scenario, problems with subsidence, emission of hazardous gases, and/or contamination of surface and ground water resources are not present. Critical Area Planting (342) & Fence (382) may be associated practices.

Before Situation: A horizontal shaft that presents a threat to safety for humans and large animals. The shaft is being utilized by bats and other wildlife, or there are known cultural resources present in the shaft that need to be protected.

After Situation: Bat grating is used to close the shaft to prevent access by humans and other large animals, but not impede wildlife usage. Install 100 SF of grating to secure entrance. Use a combination of concrete footer and anchors to secure opening.

Scenario Feature Measure: SF of opening

Scenario Unit: Square Foot

Scenario Typical Size: 100

Total Scenario Cost: \$9,503.88

Scenario Cost/Unit: \$95.04

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Equipment Installation

Concrete, CIP, formed reinforced	38	Steel reinforced concrete formed and cast-in-place in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$429.82	3	\$1,289.47
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$126.00	4	\$503.99
Portable Welder	1407	Portable field welder. Equipment only. Labor not included.	Hour	\$22.61	4	\$90.44

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.55	4	\$98.18
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.38	4	\$137.52
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$44.78	4	\$179.11

Materials

Bat Gate	1129	Bat Gate Assembly, Includes materials, equipment and labor.	Square Foot	\$69.36	100	\$6,936.31
Epoxy anchor	1599	Galvanized bolts anchored into concrete or stone using epoxy adhesive. Includes materials and labor to drill and install.	Each	\$19.20	14	\$268.86