CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Arkansas	FIELD OFFICE		DATE	

PRACTICE: Land Reclamation Abandoned Mined Land 543	Baseline Setting: Appropriate Land Use(s): Mined	
RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Moderate to Substantial Improvement	Reshaping of disturbed land and establishing vegetative cover can reduce erosion from water.
Wind	Moderate to Substantial Improvement	Reshaping of disturbed land and establishing vegetative cover can reduce erosion from wind.
Ephemeral Gully	Moderate to Substantial Improvement	Reshaping of disturbed land and establishing vegetative cover can reduce erosion from water.
Classic Gully	Slight Improvement	Onsite gullies are reclaimed and stabilized.
Streambank	Not Applicable	Not applicable.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Not Applicable	Not applicable.
Mass Movement	Substantial Improvement	Slopes are reshaped and stabilized.
Road, Roadsides, and Construction Sites	Substantial Improvement	Road and construction areas are reshaped and stabilized.
SOIL – CONDITION		
Organic Matter Depletion	Moderate Improvement	Soil organic matter is a major concern that will be addressed by mulching, soil amendments, manure, compost, and high biomass producing plants
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Slight Improvement	Mulching, soil amendments, compost, and tillage will address soil compaction of the reconstructed area.
Subsidence	Not Applicable	Not applicable.
Contaminants:		
• Salts and other Chemicals	Moderate to Substantial Improvement	Contaminated soil will be removed from the surface and buried using precautions that prevent water contamination
• Animal Waste and other Organics - N	Not Applicable	Not applicable.
• Animal Waste and other Organics - P	Not Applicable	Not applicable.
• Animal Waste and other Organics - K	Not Applicable	Not applicable.
• Commercial Fertilizer - N	Not Applicable	Not applicable.
• Commercial Fertilizer – P	Not Applicable	Not applicable.
• Commercial Fertilizer – K	Not Applicable	Not applicable.

• Residual Pesticides	Not Applicable	Not applicable.
Damage from Sediment Deposition	Not Applicable	Not applicable.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Not Applicable	Not applicable.
Excessive Runoff, Flooding, or Ponding	Moderate Improvement	Land reconstruction will include grading, shaping, and revegetation to reduce potential for flooding and ponding.
Excessive Subsurface Water	Not Applicable	Not applicable.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight to Substantial Improvement	Adequate outlets are provided for water disposal.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Substantial Improvement	Shaping and revegetation will reduce concerns about sediments reducing water conveyance capacity.
Reduced Storage of Water Bodies by Sediment Accumulation	Substantial Improvement	Shaping and revegetation will reduce concerns about sediments reducing water storage capacity of water bodies.
Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Salinity	Slight Improvement	The action results in increased vegetative growth which may take up contaminants.
• Harmful Levels of Heavy Metals	Slight Improvement	The action results in increased vegetative growth which may take up heavy metals.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Suspended Sediment and Turbidity	Moderate to Substantial Improvement	Erosion control and revegetation will reduce concerns about sediments.
• Excessive Salinity	Slight Improvement	Improved vegetative cover will stabilize slopes reducing runoff from salt-affected soils.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Moderate Improvement	Reconstructed mine land provides reduced runoff and erosion and the filtering effects of vegetation reduces the risk of

		harmful levels of pathogens entering surface water.
• Harmful Levels of Petroleum	Moderate Improvement	Reconstructed mine land provides reduced runoff and erosion. And the filtering effects of vegetation further reduces the risk of harmful levels of petroleum entering surface water.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight to Moderate Improvement	Equipment operations can produce particulate emissions and exhaust emissions.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Slight to Moderate Worsening	Equipment operations can produce particulate emissions and exhaust emissions.
Excessive Ozone	Neutral	There is a minimal reduction of ozone precursors through reduced surface temperatures offered by shade or ground cover, and minimal biofiltering of ozone concentrations due to interception by vegetation.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Slight to Moderate Improvement	Vegetation removes CO2 from the air and stores it in the form of carbon in the plants and soil.
• N_20 (Nitrous Oxide)	Not Applicable	Not applicable.
• CH_4 (Methane)	Not Applicable	Not applicable.
Ammonia (NH_3)	Neutral	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Slight Worsening	short term fugitive dust emissions into the air
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Substantial Improvement	When species are selected for stabilization, they are adapted and suited.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Moderate to Substantial Improvement	Vegetative cover species will be selected and maintained at optimal conditions for the intended purpose.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Not Applicable	Not applicable.
• Declining Species, Species of Concern	Not Applicable	Not applicable.
Noxious and Invasive Plants	Moderate to Substantial	Vegetation is installed and

	Improvement	managed to control undesired species.
Forage Quality and Palatability	Substantial Improvement	Plants selected will be high quality forage plants if the intended use is grazing
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more food for wildlife.
Inadequate Cover/Shelter	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more food for wildlife.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Slight Improvement	Reconstruction plans will provide for wildlife habitat improvements according to client objectives
Habitat Fragmentation	Slight to Moderate Improvement	Establishment of plant community will reduce fragmentation
Imbalance Among and Within Populations	Not Applicable	Not applicable.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Moderate to Substantial Improvement	Revegetation efforts could include species that provide quality forage for livestock.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
HUMAN – ECONOMICS		
Land - Change in Land Use	Substantial	Substantial if land is brought into production.
Land – Land in Production	Substantial increase	Substantial increase, land brought into production.
Capital – Change in Equipment	Moderate to substantial increase.	
Capital - Total Investment Cost	Substantial.	
Capital – Annual Cost	Slight to moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Negligible	
Labor – Change in Management Level	Negligible	Negligible, if contracted.
Risk - Yield	Substantial Decrease	Substantial decrease due to

		restoration of previously unproductive areas.
Risk - Flexibility	Substantial Decrease	Substantial decrease due to restoration or natural plant community balance.
Risk - Timing	Substantial Increase	Substantial increase - practice must be implemented during growing season.
Risk – Cash Flow	Substantial Increase	Substantial increase due to design considerations.
Profitability – Change in Profitability	Situational	Substantial decerase or increase.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Consider if mine is historic structure.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Not Applicable	Not Applicable
Underutilization of Non-Fossil Energy Resources	Not Applicable	Not Applicable

Human Considerations Explanation

Considerations	Physical effects indicate:
Land - Change in Land Use	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
Land - Land in Production	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
Capital - Change in Equipment	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
Capital - Total Investment Cost	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
Capital - Annual Cost	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
Capital - Credit & Farm Program Eligibility	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
Labor – Labor	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
Labor - Change in Management Level	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
Risk – Yield	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
Risk – Flexibility	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
Risk – Timing	The degree to which risk, as related to the timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Cash Flow	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Profitability - Change in Profitability	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
Cultural Resources and/or Historic Properties Present or Suspected to be Present	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
Depletion of Fossil Fuel Resources	Inefficient use of fossil-originated energy sources (diesel, gasoline, propane, natural gas, coal), lubricants, and other materials.
Underutilization of Non-Fossil Energy Sources	Available and cost-effective alternative energy sources (solar, wind, biofuel, hydroelectric, geothermal) are not being used or are being used inefficiently.