CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	North Dakota	FIELD OFFICE		DATE	
PRACTICE: Access Control 472		Baseline Setting:			
		Appropriate Land Use(s): All Land Uses			
RESOURCES, CONSIDERATIONS AND CONCERNS		**PHYSICAL EFFECTS**	**RATIONALE**		
SOIL – EROSION					
Sheet and Rill		Slight to Moderate Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
Wind		Slight to Moderate Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
Ephemeral Gully		Slight to Moderate Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
Classic Gully		Slight to Moderate Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
Streambank		Slight to Substantial Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
Shoreline		Slight to Moderate Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
Irrigation Induced		Not Applicable	Not applicable.		
Mass Movement		Not Applicable	Not applicable.		
Road, Roadsides, and Construction Sites		Slight to Moderate Improvement	Control of animals, people and vehicles reduces disturbance of soil and vegetation.		
SOIL – CONDITION					
Organic Matter Depletion		Slight to Moderate Improvement	Control of animals, people and vehicles help maintain conditions of soil and vegetation.		
Rangeland Site Stability		Slight to Substantial Improvement	Barriers reduce the excessive disturbance of soil and vegetation by facilitating the effective control of timing, frequency, duration and intensity of use of an area by animals or people.		
Compaction		Moderate to Substantial Improvement	Control of animals, people and vehicles lessens compactive forces on soil.		
Subsidence		Not Applicable	Not applicable.		
Contaminants:					
• Salts and other Chemicals		Slight to Moderate Improvement	Control of animals, people and vehicles may increase infiltration, leaching and plant uptake.		
• Animal Waste and other Organics - N		NA	NA		
• Animal Waste and other Organics - P		NA	NA		

• Animal Waste and other Organics - K	NA	NA
• Commercial Fertilizer - N	NA	NA
• Commercial Fertilizer – P	NA	NA.
• Commercial Fertilizer – K	NA	NA
• Residual Pesticides	Not Applicable	Not applicable.
Damage from Sediment Deposition	Slight to Moderate Improvement	Control of animals, people and vehicles reduces erosion, runoff and resulting sedimentation.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Slight to Substantial Improvement	Barriers reduce the excessive disturbance of soil and vegetation by facilitating the effective control of timing, frequency, duration and intensity of use of an area by animals or people.
Excessive Seepage	None to Slight Improvement	Control of animals, people and vehicles influences vigor and health of vegetation which in turn can influence water uptake and infiltration.
Excessive Runoff, Flooding, or Ponding	Slight to Moderate Worsening	Control of animals, people and vehicles can improve vigor and health of vegetation which can increase retardance of water flows. Also, exclusion structures can trap debris further retarding flows.
Excessive Subsurface Water	Slight to Moderate Improvement	Control of animals, people and vehicles influences vigor and health of vegetation which in turn can influence water uptake.
Drifted Snow	None to Substantial Improvement	Allowing vegetation to grow undisturbed can create effective snow trap.
Inadequate Outlets	None to Slight Improvement	Control of animals, people and vehicles influences vigor and health of vegetation which can increase retardance of water flows reducing the need for larger outlets.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Slight to Substantial Improvement	Control of animals, people and vehicles influences vegetation vigor and soil structure which can help optimize water use.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Moderate Improvement	Control of animals, people and vehicles can improve vigor and health of vegetation which can increase retardance of sediments.

Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Moderate Improvement	Control of animals, people and vehicles can improve vigor and health of vegetation which can increase retardance of sediments.
Aquifer Overdraft	Neutral	Control of animals, people and vehicles can improve soil structure and infiltration of water to the aquifer. However, the effect is countered by improved vegetation vigor which increases water uptake.
Insufficient Flows in Water Courses	Slight to Moderate Improvement	Control of animals, people and vehicles influences vigor and health of vegetation and soil condition in uplands and riparian areas which in turn can enhance water storage and infiltration to stabilize flow in water courses.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight Improvement	Control of animals, people, and vehicles influences vegetation vigor and soil structure which can accelerate use and breakdown of nutrients/organics.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	NA	NA
• Harmful Levels of Pathogens	Slight Improvement	Control of animals and people lessens pathogen production in sensitive areas.
• Harmful Levels of Petroleum	None or Slight Improvement	Reducing vehicular access reduces the potential for petroleum contamination.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	Control of animals, people and vehicles influences vigor and health of vegetation and soil condition reducing runoff when applied with other management practices.
• Excessive Suspended Sediment and Turbidity	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	NA	NA
• Harmful Temperatures	NA to Substantial Improvement	Control of animals, people and vehicles influences vigor, health, and availability of vegetation when applied with other conservation practices

• Harmful Levels of Pathogens	Slight to Moderate Improvement	Control of animals, people and vehicles influences vigor and health of vegetation and soil condition which in turn can influence water uptake and infiltration to reduce runoff and increase mortality of pathogens.
• Harmful Levels of Petroleum	None or Slight Improvement	Control of animals, people and vehicles influences vigor and health of vegetation and soil condition which in turn can influence water uptake and infiltration to reduce runoff and increase trapping and breakdown of petroleum products.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight to Moderate Improvement	Restricting traffic on an area can result in an improved stand of vegetation, which can reduce the generation of particulates.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Slight to Moderate Improvement	Restricting traffic on an area can result in an improved stand of vegetation, which can reduce the generation of particulates.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Slight 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)	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Slight Improvement	Reduction in wind erosion potential and fugitive dust
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Slight to Substantial Improvement	Control of access encourages plants that are adapted and suited for the site.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Moderate to Substantial Improvement	Control of animals facilitates grazing management enhancing health and vigor of desired plant communities.
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	None to Substantial Improvement	Riparian forests can benefit from controlling livestock access.
Noxious and Invasive Plants	Moderate to Substantial Improvement	Control of animals, people and vehicles influences vigor and health of desirable vegetation thereby reducing threat of noxious and invasive plants when applied with other conservation practices.
Forage Quality and Palatability	Moderate to Substantial Improvement	Control of animals, people and vehicles influences quality and health of vegetation
Wildfire Hazard	Slight to Substantial Improvement	Access by people and vehicles to high hazard areas can be restricted.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight to Substantial Improvement	Control of animals, people and vehicles influences vigor, health, and availability of vegetation for food.
Inadequate Cover/Shelter	Slight to Substantial Improvement	Control of animals, people and vehicles influences vigor, health, and availability of vegetation cover/shelter.
Inadequate Water	Slight to Moderate Improvement	Control of access protects available water sources.
Inadequate Space	NA	NA
Habitat Fragmentation	Slight to Substantial Improvement	Excluded use can protect connections between habitats.
Imbalance Among and Within Populations	Slight to Substantial Improvement	Control of animals, people and vehicles facilitates the effects of other population-balancing practices and activities.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral to moderate improvement	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Neutral to moderate improvement	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	Control of animals influences vigor and health of vegetation.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	NA to Substantial Improvement	Keeping livestock out of ponds and pumping to tanks provides cleaner water.

Stress and Mortality	Moderate to Substantial Improvement	Barriers exclude livestock from unsafe areas and facilitate improved forage and water supplies.
HUMAN – ECONOMICS		
Land - Change in Land Use	Substantial.	
Land – Land in Production	Substantial decrease.	
Capital – Change in Equipment	Slight Increase.	
Capital - Total Investment Cost	Not applicable.	Not applicable.
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Situational	
Labor – Change in Management Level	Situational	
Risk - Yield	NA to Moderate Increase	Moderate increase due to unavailability of deferred area.
Risk - Flexibility	NA to Moderate Increase	Moderate increase due to incorporating deferred area into grazing plan.
Risk - Timing	Substantial Increase	Substantial increase - forage must be available for livestock while target area is deferred.
Risk – Cash Flow	Slight to Moderate Increase	Slight to moderate increase due to loss of grazing.
Profitability – Change in Profitability	Slight to moderate decrease.	
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Decrease in risk of damage/loss	Appropriate when used to avoid effects on historic properties.
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.