

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
PRACTICE: Underground Outlet 620		Baseline Setting:			
		Appropriate Land Use(s): All Land Uses			
RESOURCES, CONSIDERATIONS AND CONCERNS	PHYSICAL EFFECTS		RATIONALE		
SOIL - EROSION					
Sheet and Rill	Not Applicable		Not applicable.		
Wind	Not Applicable		Not applicable.		
Ephemeral Gully	Substantial Improvement		Concentrated flow is eliminated and excess water conveyed to safe outlet		
Classic Gully	Moderate to Substantial Improvement		Concentrated flow is reduced or eliminated and excess water conveyed to safe outlet.		
Streambank	Slight Worsening		Concentrated flows are directed to surface streams at an accelerated rate.		
Shoreline	Not Applicable		Not applicable.		
Irrigation Induced	Not Applicable		Not applicable.		
Mass Movement	Slight Improvement		Water is removed from site and not allowed to saturate soils.		
Road, Roadsides, and Construction Sites	Slight to Moderate Improvement		Concentrated flow is conveyed away from site to safe outlet.		
SOIL – CONDITION					
Organic Matter Depletion	Not Applicable		Not applicable.		
Rangeland Site Stability	Not Applicable		Not applicable.		
Compaction	Not Applicable		Not applicable.		
Subsidence	Not Applicable		Not applicable.		
Contaminants:					
• Salts and other Chemicals	Not Applicable		Not applicable.		
• 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	Slight to Moderate Improvement		Concentrated water is safely carried off-site without erosion and resulting sedimentation.		
WATER – QUANTITY					
Rangeland Hydrologic Cycle	Not Applicable		Not applicable.		
Excessive Seepage	Neutral		The action removes concentrated flows before they infiltrate.		
Excessive Runoff, Flooding, or Ponding	Moderate to Substantial Improvement		Ponding and flooding are conveyed to a safe outlet.		
Excessive Subsurface Water	Neutral		The action removes concentrated		

		flows before they infiltrate.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Moderate to Substantial Improvement	The action provides local outlets for practices such as terraces, diversions, basins, etc
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	Slight to Moderate Improvement	Concentrated water is safely carried off-site without erosion and resulting sedimentation.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Moderate Improvement	Concentrated water is safely carried off-site without erosion and resulting sedimentation.
Aquifer Overdraft	Neutral	Removal of concentrated flows may result in changes in local subsurface water amounts but no aquifer level changes
Insufficient Flows in Water Courses	Neutral	Runoff is delivered to receiving stream with slight changes in timing and quantity
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight Worsening	Underground outlets can provide a direct conduit for runoff to surface waters
• Excessive Nutrients and Organics	Slight Worsening	Underground outlets can provide a direct conduit for runoff to surface waters
• Excessive Suspended Sediment and Turbidity	Neutral	Slowing water in associated structures will cause sediment to settle.
• Excessive Salinity	Neutral	The action does not increase or decrease the amount of salt lost from a field.
• Harmful Levels of Heavy Metals	Slight Improvement	Decrease in erosion will lead to decrease in sediment bound contaminants, but practice can increase the delivery of soluble contaminants.
• Harmful Temperatures	Neutral	Water collected subsurface will remain relatively cool.
• Harmful Levels of Pathogens	Slight Worsening	Underground outlets can provide a direct conduit for runoff contaminated with pathogens to surface waters
• Harmful Levels of Petroleum	Slight Worsening	Underground outlets can provide

		a direct conduit for runoff contaminated with petroleum to surface waters
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Not Applicable	Not applicable.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Not Applicable	Not applicable.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO ₂ (Carbon Dioxide)	Not Applicable	Not applicable.
• N ₂ O (Nitrous Oxide)	Neutral	Planning and management must consider nitrogen/nitrates in outflow
• 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	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABILITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Removal of excess surface water can positively affect plant growth and vigor
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	Not Applicable	Not applicable.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Not Applicable	Not applicable.
Inadequate Cover/Shelter	Not Applicable	Not applicable.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Not Applicable	Not applicable.
Habitat Fragmentation	Not Applicable	Not applicable.
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	Neutral	Activities are designed,

Concern		installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Not Applicable	Not applicable.
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	Not applicable.	Not applicable.
Land – Land in Production	Substantial increase	Substantial increase, if land brought into production.
Capital – Change in Equipment	Moderate increase.	Equipment required to install practice.
Capital - Total Investment Cost	Substantial.	Materials, equipment and labor to install practice.
Capital – Annual Cost	Slight increase.	Annual structure management costs.
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight increase	Slight increase to maintain risers.
Labor – Change in Management Level	Negligible	
Risk - Yield	Slight Decrease	Negligible to slight decrease due to improved drainage.
Risk - Flexibility	Slight to Moderate Increase	Slight to moderate increase depending on design criteria.
Risk - Timing	Moderate Increase	Moderate increase, based on degree of excess surface water.
Risk – Cash Flow	Moderate Increase	Moderate increase due to construction cost.
Profitability – Change in Profitability	Situational	Slight decrease to moderate increase.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Moderate Increase	Construction impacts possible
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	No Effect	This practice requires energy for maintenance, however energy is saved with improved farmability.
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.