CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Pennsylvania	FIELD OFFICE	Any	DATE	
PRACTICE: Terrace 600		Baseline Setting:			
		Appropriate Land Use(s): Crop			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Substantial Improvement	Terrace shortens slope length and reduces erosion by water.
Wind	Slight Improvement	Vegetative terraces may shorten the unsheltered distance and trap saltating soil particles when orientation is across the prevailing wind erosion direction.
Ephemeral Gully	Moderate to Substantial Improvement	The slope length of the concentrated flow channel is shortened.
Classic Gully	Slight to Moderate Improvement	Changes hydrology of the land unit
Streambank	Slight Improvement	Reduces concentrated flow from the land unit. May increase sediment carrying capacity of runoff water entering stream.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Slight Improvement	Reduced slope length reduces erosion.
Mass Movement	Slight Worsening	Infiltration of trapped runoff may add to soil saturation causing mass movement.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Slight Improvement	Reduced erosion will reduce losses of organic matter.
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Slight Worsening	Construction activities cause compaction in the terrace channel and embankment.
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	The action reduces erosion and traps sediment.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Slight to Moderate Worsening	Because of increased infiltration
Excessive Runoff, Flooding, or Ponding	Moderate to Substantial Improvement	Water storage is increased and runoff is reduced.
Excessive Subsurface Water	Slight to Moderate Worsening	Because of increased infiltration
Drifted Snow	Slight Worsening	Terrace embankments will collect snow
Inadequate Outlets	Slight to Moderate Improvement	Amount of runoff is regulated and controlled to reduce impact on outlets.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Moderate Improvement	The action reduces erosion and runoff and improves water efficiency.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Moderate Improvement	Sediment trapped before it is transported to conveyance ways.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Moderate Improvement	Sediment trapped before it is transported to conveyance ways.
Aquifer Overdraft	Slight Improvement	Increases infiltration for aquifer recharge
Insufficient Flows in Water Courses	Slight Improvement	Reduced peak runoff but increased long term runoff
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight to Moderate Worsening	this practice increases infiltration
• Excessive Nutrients and Organics	Slight to Moderate Worsening	The action increases infiltration which may provide transport for nutrients.
• Excessive Salinity	Slight to Moderate Worsening	The action increases infiltration of water and soluble contaminants.
• Harmful Levels of Heavy Metals	Slight Worsening	The action increases infiltration of water and soluble contaminants.
• Harmful Levels of Pathogens	Slight Worsening	The action increases infiltration of water and contaminants, including pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Substantial Improvement	The action reduces runoff and erosion.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	Reduced erosion and increased infiltration can result in fewer dissolved and sediment-attached nutrients leaving the field.
• Excessive Suspended Sediment and Turbidity	Slight to Substantial Improvement	Terraces slow water and allow sediment deposition.
• Excessive Salinity	Slight to Moderate Improvement	The action can increase infiltration, which will reduce runoff of salts from a field.

• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	The action traps sediment, reduces ephemeral gully erosion and increases infiltration of surface runoff.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Slight to Moderate Improvement	Increases infiltration and reduces runoff.
• Harmful Levels of Petroleum	Slight to Moderate Improvement	Increases infiltration and reduces runoff.
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)	Neutral	Terracing promotes vegetative growth that 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	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Conserving moisture and reduced erosion will improve plant productivity and health.
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	Slight Improvement	Vegetation-backed terraces provide limited cover.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Not Applicable	Not applicable.
Habitat Fragmentation	Not Applicable	Not applicable.
Imbalance Among and Within	Not Applicable	Not applicable.

Populations		
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	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	Slight	Slight, convert to terrace and water/sediment storage.
Land – Land in Production	Moderate decrease	Moderate decrease, lose cropland as terrace is installed.
Capital – Change in Equipment	Moderate increase.	
Capital - Total Investment Cost	Substantial.	Materials, equipment and labor to install practice.
Capital – Annual Cost	Slight to moderate increase.	Operation and maintenance costs to maintain terrace, remove sediment and control pests.
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase	Slight to moderate increase to maintain terraces annually.
Labor – Change in Management Level	Negligible	
Risk - Yield	Situational.	
Risk - Flexibility	Slight Increase	Slight increase due to following designed row pattern.
Risk - Timing	Slight to Moderate Increase	Slight to moderate increase, depending on the presence and effect of ephemeral gullies.
Risk – Cash Flow	Moderate Increase	Moderate increase due to construction costs.
Profitability – Change in Profitability	Situational	Slight decrease to slight increase.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts possible
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Moderate to Substantial Increase	Installation, maintenance and operation of this practice requires energy
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.