CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Texas	FIELD OFFICE	Any	DATE	11/3/2008
PRACTICE: Constructed Wetland 656		Baseline Setting:			
		Appropriate Land Use(s): Crop, Hay, Headquarters, Pasture			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Not Applicable	Not applicable.
Wind	Not Applicable	Not applicable.
Ephemeral Gully	Not Applicable	Not applicable.
Classic Gully	Not Applicable	Not applicable.
Streambank	Not Applicable	Not applicable.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Not Applicable	Not applicable.
Mass Movement	Not Applicable	Not applicable.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
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	Not Applicable	Not applicable.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Not Applicable	Not applicable.
Excessive Runoff, Flooding, or Ponding	Slight to Substantial Improvement	Provide temporary flood storage.
Excessive Subsurface Water	Neutral	Not applicable.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight Improvement	Provide temporary flood storage.
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	Moderate to Substantial Improvement	Wetlands will capture runoff and sediments.
Reduced Storage of Water Bodies by Sediment Accumulation	Moderate Improvement	Wetlands trap sediment.

Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight Improvement	The action captures pesticide residues and facilitates their degradation.
• Excessive Nutrients and Organics	Slight Improvement	The action traps nutrients and organics which are broken down and used by wetland plants.
• Excessive Salinity	Slight Improvement	Any salinity in runoff or wastewater will be assimilated in the wetland rather than infiltrating to groundwater.
• Harmful Levels of Heavy Metals	Slight Improvement	Heavy metals attached to sediment can be trapped in wetlands.
• Harmful Levels of Pathogens	Moderate Improvement	Microbial activity in wetlands can reduce pathogen levels.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	The action captures pesticide residues and facilitates their degradation.
• Excessive Nutrients and Organics	Moderate Improvement	The action traps nutrients and organics which are broken down and used by wetland plants.
• Excessive Suspended Sediment and Turbidity	Moderate to Substantial Improvement	System traps and holds suspended materials from entering surface waters.
• Excessive Salinity	Slight Improvement	Any salts in surface runoff will be detained in the wetland. Some wetland plants may take up salts.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Vegetation and anaerobic conditions trap heavy metals.
• Harmful Temperatures	Neutral	Effluent is discharged to storage facilities for land application.
• Harmful Levels of Pathogens	Slight to Moderate Improvement	Pathogens are trapped in the wetland.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
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	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	The accumulation of organic matter and sediments sequester

		carbon.
• N_20 (Nitrous Oxide)	Not Applicable	Not applicable.
• CH_4 (Methane)	Slight Worsening	Anaerobic conditions are conducive to the formation of CH4
Ammonia (NH_3)	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Slight Worsening	Methane production and transport, as well as other odors, will be objectionable to some people.
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	Moderate to Substantial Improvement	Plants selected are adapted and suited.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Substantial Improvement	Plants are selected and managed to maintain optimal 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	Moderate to Substantial Improvement	Construction of wetland and desirable plants will compete with and control noxious and invasive plants.
Forage Quality and Palatability	Not Applicable	Not applicable.
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	Moderate to Substantial Improvement	Increased quality and quantity of vegetation provides more cover for wildlife.
Inadequate Water	Neutral	The wetland provides additional water but it will likely be chemical-laden and unfit for fish and wildlife use.
Inadequate Space	Slight to Substantial Improvement	Additional wetland space is created.
Habitat Fragmentation	Slight to Substantial Improvement	Multiple wetlands can restore the number and connectivity of this kind of habitat.
Imbalance Among and Within Populations	Substantial Improvement	Habitat management is implemented to remove limiting factors.
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	Substantial	Substantial, convert to wetland.
Land – Land in Production	Substantial decrease	Substantial decrease, convert from cropland to wetland.
Capital – Change in Equipment	Moderate increase.	
Capital - Total Investment Cost	Substantial.	
Capital – Annual Cost	Slight to moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate decrease	Slight to moderate decrease with land taken out of production.
Labor – Change in Management Level	Slight to moderate increase.	
Risk - Yield	Slight Decrease	Slight decrease due to a more conducive habitat.
Risk - Flexibility	Slight to Moderate Decrease	Decreased risk due to substantial increase in habitat capabilities.
Risk - Timing	Not Applicable.	Not Applicable.
Risk – Cash Flow	Slight Increase	Slight increase due to installation costs.
Profitability – Change in Profitability	Slight to substantial decrease.	
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts; TCP important plant species.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	No Effect	This practice does not require pumping in most cases. However, energy consumption associated with pumping can be offset by reduced need to harvest fresh water.
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.