

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

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| STATE | Nebraska | FIELD OFFICE | Any | DATE | 12/27/2011 |
| PRACTICE: Dike 356 | | 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 | Not Applicable | Not applicable. | | | |
| Classic Gully | Slight Improvement | Reduces overland flow | | | |
| Streambank | Slight to Moderate Worsening | Causes higher water depths and velocities. | | | |
| Shoreline | Not Applicable | Not applicable. | | | |
| Irrigation Induced | Not Applicable | Not applicable. | | | |
| Mass Movement | Not Applicable | Not applicable. | | | |
| Road, Roadsides, and Construction Sites | Slight to Substantial Improvement | Prevents overland flow from entering construction sites. | | | |
| 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 | Slight Worsening | Seepage may increase due to temporary storage behind the dikes. | | | |
| Excessive Runoff, Flooding, or Ponding | Slight to Substantial Improvement | Water is kept within the channel and prevents flooding. | | | |
| Excessive Subsurface Water | Slight Worsening | Seepage may increase due to temporary storage behind the dikes. | | | |
| Drifted Snow | Not Applicable | Not applicable. | | | |
| Inadequate Outlets | Slight to Moderate Worsening | Prevents water from leaving or entering the channel. | | | |
| Inefficient Water use on Irrigated Land | Not Applicable | Not applicable. | | | |
| Inefficient Water use on Non-Irrigated Land | Not Applicable | Not applicable. | | | |

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| Reduced Capacity of Conveyances by Sediment Deposition | Slight Improvement | Helps keep velocities up and improve sediment transport. |
| Reduced Storage of Water Bodies by Sediment Accumulation | Slight Worsening | Improve sediment transport to downstream 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 | Slight to Moderate Improvement | The action excludes surface water from the pesticide application site. |
| • 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 to Moderate Improvement | The action excludes surface water from the pesticide application site. |
| • Excessive Nutrients and Organics | Not Applicable | Not applicable. |
| • Excessive Suspended Sediment and Turbidity | Neutral | If a dike is constructed to hold water, suspended sediment and turbidity decreases; if dike is constructed as flood control measure, suspended sediment and turbidity will increase because of erosive effect of flowing, channelized water. |
| • Excessive Salinity | Not Applicable | Not applicable. |
| • Harmful Levels of Heavy Metals | Not Applicable | Not applicable. |
| • Harmful Temperatures | Neutral | Surface water temperature is dependent on site conditions and location of dike. |
| • Harmful Levels of Pathogens | Not Applicable | Not applicable. |
| • 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 | Not Applicable | Not applicable. |
| Excessive Greenhouse Gas: | | |
| • CO ₂ (Carbon Dioxide) | Not Applicable | Not applicable. |
| • N ₂ O (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 – SUITABILITY | | |

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| Plants not Adapted or Suited | Not Applicable | Not applicable. |
| PLANTS - CONDITION | | |
| Productivity, Health, and Vigor | Not Applicable | Not applicable. |
| Threatened or Endangered Plant Species: | | |
| <ul style="list-style-type: none"> Plant Species Listed or Proposed for Listing Under the Endangered Species Act | Not Applicable | Not applicable. |
| <ul style="list-style-type: none"> 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 | Slight to Substantial Worsening | Restricting floodplains eliminates refuge habitat for stream and river-dwelling wildlife species. |
| Inadequate Cover/Shelter | Slight to Substantial Worsening | Restricting floodplains eliminates refuge habitat for stream and river-dwelling wildlife species. |
| Inadequate Water | Slight Improvement | Dikes will retain water benefiting some species, however if placed in floodplains aquatic habitats will be fragmented. |
| Inadequate Space | Slight Improvement | Dikes will retain water benefiting some species, however if placed in floodplains aquatic habitats will be fragmented. |
| Habitat Fragmentation | Slight Worsening | Aquatic habitats are fragmented. |
| Imbalance Among and Within Populations | Neutral | Dikes will retain water benefiting some species, however if placed in floodplains aquatic habitats will be fragmented. |
| Threatened and Endangered Fish and Wildlife Species: | | |
| <ul style="list-style-type: none"> 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. |
| <ul style="list-style-type: none"> 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 | | |
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| Land - Change in Land Use | Substantial | Substantial, to convert to dike and water & sediment storage. |
| Land – Land in Production | Substantial decrease | Substantial decrease, lose cropland as dike is installed. |
| Capital – Change in Equipment | 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 | |
| Risk - Yield | Slight Decrease | Negligible to slight decrease due to protection from flooding. |
| Risk - Flexibility | Not applicable. | Not applicable. |
| Risk - Timing | Moderate Increase | Moderate increase - practice should be installed prior to rainy season. |
| Risk – Cash Flow | Substantial Increase | Substantial increase due to construction costs. |
| Profitability – Change in Profitability | Situational | Substantial increase or decrease. |
| HUMAN - CULTURAL | | |
| Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT | Moderate to Substantial Increase | Construction adverse effects; effects of inundation. |
| HUMAN – ENERGY | | |
| Depletion of Fossil Fuel Resources | Slight to Substantial Decrease | This practice can substantially reduce energy used to recover from flood events. |
| Underutilization of Non-Fossil Energy Resources | Not Applicable | Not applicable. |

Human Considerations Explanation

| Considerations | Physical effects indicate: |
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| 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. |