

314 – Brush Management**314 - Mechanical, Hand tools**

Unit Type = Ac

Payment Rate, \$82.77, HU \$99.32

Description: Using hand tools, such as axes, shovels, hoes, nippers, brush pullers, and including chainsaws to remove or cut off woody plants at or below the root collar. Area is moderate rolling to gentle sloping,

Before Situation: Area is in the very early phases of woody non herbaceous species encroachment that degrades habitat for desired wildlife species. Future degradation of key forage species and ecological site condition promoting noxious and invasive species and increased soil erosion if woody species are allowed to expand.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition continues to progressing in an upward trend, hydrology and plant health and vigor are sustained.

314 - Mechanical, Small Shrubs, Light Infestation

Unit Type = Ac

Payment Rate, \$61.19, HU \$73.43

Description: Removal of small woody vegetation of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at a light infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical, Small Shrubs, Medium Infestation

Unit Type = Ac

Payment Rate, \$74.41, HU \$89.29

Description: Removal of small woody vegetation of medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical, Small Shrubs, Heavy Infestation

Unit Type = Ac

Payment Rate, \$87.62, HU \$105.15

Description: Removal of small woody vegetation of heavy infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the heavy infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical, Large Shrubs, Light Infestation

Unit Type = Ac

Payment Rate, \$162.59, HU \$195.11

Description: Removal of large woody vegetation of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by pushing, grubbing, masticating, chaining and then raking or piling in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the light infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical, Large Shrubs, Medium Infestation

Unit Type = Ac

Payment Rate, \$264.2, HU \$317.03

Description: Removal of large woody vegetation of medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by pushing, grubbing, masticating, chaining and then raking or piling in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical, Large Shrubs, Heavy Infestation

Unit Type = Ac

Payment Rate, \$329.9, HU \$395.88

Description: Removal of large woody vegetation of heavy infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by pushing, grubbing, masticating, chaining then raking or piling in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the heavy infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical & Chemical, Small Shrubs, Light Infestation

Unit Type = Ac

Payment Rate, \$80.64, HU \$96.77

Description: Removal of small woody vegetation of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment followed by an application of low cost chemicals in low volumes of material in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the light infestation rate.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical & Chemical, Small Shrubs, Medium Infestation

Unit Type = Ac

Payment Rate, \$93.86, HU \$112.63

Description: Removal of small woody vegetation of medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment followed by an application of low cost chemicals in low volumes of material in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium infestation rate.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Mechanical & Chemical, Small Shrubs, Heavy Infestation

Unit Type = Ac

Payment Rate, \$109.28, HU \$131.13

Description: Removal of small woody vegetation of heavy infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter; chopper or other light equipment followed by an application of low cost chemicals in low volumes of material in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the heavy infestation.

Before Situation: Area consists of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - Chemical, Individual Plant Treatment

Unit Type = Ac

Payment Rate, \$103.56, HU \$124.27

Description: This Practice is for the implementation of brush management on range, pasture or native pasture using Individual Plant Treatment (IPT). The method of control is application of herbicides (basal or foliar location) on selected individual plants.

Before Situation: Brush species exceed desired levels resulting in degraded plant condition, loss of forage production, or degraded wildlife habitat. Densities of brush exceed levels indicated in the ecological site descriptions.

After Situation: Brush has been treated to a level which results in improved plant condition forage production, or wildlife habitat. The method of control is application of herbicides (basal or foliar location) on selected individual plants.

314 - Chemical - Ground Applied

Unit Type = Ac

Payment Rate, \$40.89, HU \$49.07

Description: Apply brush management on rangeland, grazed forest, or pasture thru the use of broadcast application of material using low cost chemical(s) to reduce or remove undesirable woody species (brush) in uplands and other areas not in or directly adjacent to streams, ponds, or wetlands.

Before Situation: Plant, animal, or wildlife resource concerns associated with uplands and other areas not in or adjacent to stream, ponds, or wetland on grazed range, grazed forest, or pasture which are adversely affected by brush.

After Situation: A unit of pasture, grazed range, or grazed forest where reduction or removal of undesirable woody deciduous species have been accomplished by broadcast or spot treatment chemical application to address plant, animal, and wildlife resource concerns.

314 - Chemical, Aerial Applied

Unit Type = Ac

Payment Rate, \$41.49, HU \$49.79

Description: Apply brush management on rangeland, grazed forest, or pasture thru the use of broadcast aerial application of material with low cost chemical(s) to reduce or remove undesirable woody species (brush) in uplands and other areas not in or directly adjacent to streams, ponds, or wetlands.

Before Situation: Plant, animal, or wildlife resource concerns associated with uplands and other areas not in or adjacent to stream, ponds, or wetland on grazed range, grazed forest, or pasture which are adversely affected by brush.

After Situation: A unit of pasture, grazed range, or grazed forest where reduction or removal of undesirable woody species have been accomplished by broadcast or spot treatment chemical application to address plant, animal, and wildlife resource concerns.

314 - Low Cost Chemical, Aerial Applied

Unit Type = Ac

Payment Rate, \$32.98, HU \$39.57

Description: Apply brush management on rangeland, grazed forest, or pasture thru the use of broadcast aerial application of material with low cost chemical(s) to reduce or remove undesirable woody species (such as mesquite and or shinnery oak brush) in uplands and other areas not in or directly adjacent to streams, ponds, or wetlands.

Before Situation: Plant, animal, or wildlife resource concerns associated with uplands and other areas not in or adjacent to stream, ponds, or wetland on grazed range, grazed forest, or pasture which are adversely affected by brush.

After Situation: A unit of pasture, grazed range, or grazed forest where reduction or removal of undesirable woody species (brush) have been accomplished by broadcast or spot treatment chemical application to address plant, animal, and wildlife resource concerns.

314 - Chemical, Aerial Applied Salt Cedar

Unit Type = Ac

Payment Rate, \$66.65, HU \$79.98

Description: Apply brush management on rangeland, grazed forest, or pasture thru the use of broadcast aerial application of chemical(s) to reduce or remove undesirable woody species (salt cedar) in uplands and other areas.

Before Situation: Plant, animal, or wildlife resource concerns associated with uplands and other areas on grazed range, grazed forest, or pasture which are adversely affected by brush or trees.

After Situation: A unit of pasture, grazed range, or grazed forest where reduction or removal of undesirable woody species have been accomplished by aerial chemical application to address plant, animal, and wildlife resource concerns.

314 - Split-method event series

Unit Type = Ac

Payment Rate, \$109.82, HU \$131.78

Description: The practice entails the control of woody vegetation by treating it up to three times during the multi-year treatment period in order to improve ecological site condition. The brush can be treated with the same method or by a combination of methods. Woody vegetation needs to be treated at least twice in order to fully control it. Generally, herbicide volumes are reduced as the last treatment will kill resprouting stems or those which survived the first treatment or newly sprouted seedlings. Brush density has exceeded desired levels based on ecological site potential.

Before Situation: Area has excessive stands of woody species degrading health and vigor of desirable species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - PJ Mechanical Removal - Low Density

Unit Type = Ac

Payment Rate, \$128.98, HU \$154.77

Description: Removal of pinyon/juniper trees in areas with low density encroachment of less than 100 trees per acre. The practice entails the removal of trees by mechanical means, either chainsaw or heavy equipment or a combination as appropriate in order to reduce fuel loading and improve ecological site condition. Tree density has exceeded desired levels based on ecological site potential and data collected as per state specifications to determine actual density.

Before Situation: Area consists of excessive stands of pinyon juniper degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat, especially for sage grouse areas.

After Situation: Pinyon/Juniper trees are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - PJ Mechanical Removal - Moderate Density

Unit Type = Ac

Payment Rate, \$185.06, HU \$222.08

Description: Removal of pinyon/juniper trees in areas with moderate density encroachment between 101 - 250 trees per acre. The practice entails the removal of trees by mechanical means, either chainsaw or heavy equipment or a combination as appropriate in order to reduce fuel loading and improve ecological site condition. Tree density has exceeded desired levels based on ecological site potential and data collected as per state specifications to determine actual density.

Before Situation: Area consists of excessive stands of pinyon juniper degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat, especially for sage grouse areas.

After Situation: Pinyon/Juniper trees are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

314 - PJ Mechanical Removal - High Density

Unit Type = Ac

Payment Rate, \$295.76, HU \$354.91

Description: Removal of pinyon/juniper trees in areas with high density encroachment of over 251 trees per acre. The practice entails the removal of trees by mechanical means, either chainsaw or heavy equipment or a combination as appropriate in order to reduce fuel loading and improve ecological site condition. Tree density has exceeded desired levels based on ecological site potential and data collected as per state specifications to determine actual density.

Before Situation: Area consists of excessive stands of pinyon juniper degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat, especially for sage grouse areas.

After Situation: Pinyon/Juniper trees are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 – Herbaceous Weed Control

315 - Mechanical, Hand

Unit Type = Ac

Payment Rate, \$46.27, HU \$55.52

Description: Using hand tools, such as axes, shovels, hoes, and nippers, to remove or cut off herbaceous plants at or below the root collar. Area is moderate rolling to gentle sloping, moderately deep to deep soils that have herbaceous weed species that are in the early phases of invasions.

Before Situation: Area is in the very early phases of herbaceous weed encroachment that degrades habitat for desired wildlife species. Future degradation of key forage species and ecological site condition promoting noxious and invasive species and increased soil erosion if woody species are allowed to expand.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition continues to progressing in an upward trend, hydrology and plant health and vigor are sustained.

315 - Mechanical

Unit Type = Ac

Payment Rate, \$14.63, HU \$17.56

Description: Removal of herbaceous weeds of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of herbaceous weeds by the use of mower, brush hog, disc or other light equipment in order to reduce fuel loading and improve ecological site condition. Weed has exceeded desired levels based on ecological site potential.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 - Chemical, Spot

Unit Type = Ac

Payment Rate, \$30.35, HU \$36.42

Description: Land unit on which weed control would be beneficial in order to set back the plant community succession, improve the ecological condition, and improve forage conditions for domestic livestock or wildlife. The practice entails the eradication of vegetation by use of weed treatment, either initial or retreatment using hand-carried equipment (such as a backpack and hand-sprayer) to apply chemicals, in order to eliminate noxious weeds, promote forage productivity, and improve ecological condition.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 - Chemical, Ground

Unit Type = Ac

Payment Rate, \$29.94, HU \$35.93

Description: Land unit on which weed control would be beneficial in order to set back the plant community succession, improve the ecological condition, and improve forage conditions for domestic livestock or wildlife. The practice entails the eradication of vegetation by use of weed treatment using ground equipment to apply chemicals, in order to eliminate noxious weeds, promote forage productivity, and improve ecological condition.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 - Chemical, Aerial

Unit Type = Ac

Payment Rate, \$20.75, HU \$24.9

Description: Land unit on which weed control would be beneficial in order to set back the plant community succession, improve the ecological condition, and improve forage conditions for domestic livestock or wildlife. The practice entails the eradication of vegetation by use of weed treatment using airplane or helicopter to apply chemicals, in order to eliminate noxious weeds, promote forage productivity, and improve ecological condition.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 - hand and chemical

Unit Type = Ac

Payment Rate, \$60.37, HU \$72.44

Description: Using hand tools, such as axes, shovels, hoes, and nippers, to remove or cut off herbaceous plants at or below the root collar. Herbicide is applied to control re-growth of target weeds. Area is moderate rolling to gentle sloping soils that have herbaceous weed species that are in the early phases of invasions.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 - mechanical and chemical

Unit Type = Ac

Payment Rate, \$76.2, HU \$91.44

Description: Removal of herbaceous weeds of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of herbaceous weeds by the use of mower, brush hog, disc or other light equipment in order to reduce fuel loading and improve ecological site condition, then applying herbicide to control re-growth of target weeds. Weed has exceeded desired levels based on ecological site potential.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

315 - split-method and event series

Unit Type = Ac

Payment Rate, \$68.06, HU \$81.67

Description: The practice entails the control of herbaceous vegetation by treating it up to three times during the multi-year treatment period in order to improve ecological site condition. The herbs can be treated with the same method or by a combination of methods. Vegetation needs to be treated at least twice in order to fully control it. Generally, herbicide volumes are reduced as the last treatment will kill resprouting stems or those which survived the first treatment or newly sprouted seedlings. Density has exceeded desired levels based on ecological site potential.

Before Situation: Area consists of excessive stands of herbaceous weeds degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation: Herbaceous weeds are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

327 – Conservation Cover**327 - Grass**

Unit Type = Ac

Payment Rate, \$68.24, HU \$81.89

Description: This practice applies on land to be retired from agricultural production and on other lands needing permanent protective cover. This practice involves conversion from a clean-tilled (conventional tilled) intensive cropping system to permanent non-native vegetation.

Before Situation: Crops such as corn, soybeans, or cotton are conventionally grown and harvested. Full width tillage is utilized, weeds controlled by cultivation and/or chemical application. Soil surface residue amounts average 10% or less. Soil erosion occurs with visible rills present; sediment may be moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The system provides little to no wildlife habitat.

After Situation: Land covered with permanent non-native grass vegetation has reduced soil erosion, reduced water/sediment runoff, and significant dust emissions are eliminated therefore, air quality is improved. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

327 - Native Grass

Unit Type = Ac

Payment Rate, \$136.13, HU \$163.35

Description: This practice applies on land to be retired from agricultural production and on other lands needing permanent protective cover. This practice involves conversion from a clean-tilled (conventional tilled) intensive cropping system to permanent native vegetation.

Before Situation: Crops such as corn, soybeans, or cotton are conventionally grown and harvested. Full width tillage is utilized, weeds controlled by cultivation and/or chemical application. Soil surface residue amounts average 10% or less. Soil erosion occurs with visible rills present; sediment may be moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The system provides little to no wildlife habitat.

After Situation: Land covered with permanent native grass vegetation has reduced soil erosion, reduced water/sediment runoff, and significant dust emissions are eliminated therefore, air quality is improved. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

327 - Orchard or Vineyard Alleyways

Unit Type = Ac

Payment Rate, \$52.92, HU \$63.5

Description: This practice applies on orchards and vineyards needing permanent protective cover in the alleyways between tree and vine rows. This practice involves conversion from a clean-tilled (conventional tilled) intensive cropping system to permanent vegetation. 60% conservation cover per acre is typical.

Before Situation: Orchard or vineyard with bare soil between vine/tree rows. Bare soil is exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter sediment/nutrient runoff from orchards/vineyards increases. Sheet and rill erosion occurs with visible rills by spring. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of long periods of bare soil. Little to no wildlife/pollinator habitat present.

After Situation: Orchard or Vineyard area between vine/tree rows are planted with permanent introduced grass/legume mix. Area covered has reduced soil erosion, reduced water/sediment runoff, and significant dust emissions are eliminated therefore, air quality is improved. Plants sown for conservation cover may provide cover for beneficial insects, pollinators, and wildlife.

327 - Pollinator Habitat

Unit Type = Ac

Payment Rate, \$292.85, HU \$351.41

Description: Permanent vegetation, including mix of native grasses, legume, forbs, established on any land needing permanent vegetative cover that provides habitat for pollinators. The practice may also provide wildlife habitat. Practice applicable on cropland, odd areas, corners, etc.

Before Situation: Crops such as corn, soybeans, or cotton are conventionally grown and harvested. Full width tillage is utilized, weeds controlled by cultivation and/or chemical application. Soil surface residue amounts average 10% or less. Soil erosion occurs with visible rills present; sediment may be moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The system provides little to no wildlife or pollinator habitat.

After Situation: Land covered with permanent pollinator habitat including a mix of native grasses, legume, and forbs (mix may also include non-native species). This practice may also have reduced soil erosion, reduced water/sediment runoff, and significant dust emissions are eliminated therefore, air quality is improved. Plants sown for pollinator habitat may also provide cover for beneficial insects and wildlife. This scenario does not apply to critical area plantings.

327 - Organic Native Mix

Unit Type = Ac

Payment Rate, \$130.31, HU \$156.37

Description: This practice applies on organically managed land needing permanent protective cover. This practice involves conversion from an intensive organic cropping system to permanent native vegetation

Before Situation: Crops such as vegetables and small fruit crops are organically grown and harvested. Full width tillage is utilized, weeds controlled mainly by cultivation. Soil surface residue amounts average 10% or less. Soil erosion occurs with visible rills present; sediment may be moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The system provides little to no wildlife habitat.

After Situation: Organically manage land covered with permanent native grass/legume mix vegetation has reduced soil erosion, reduced water/sediment runoff, and significant dust emissions are eliminated therefore, air quality is improved. Plants sown for conservation cover may provide cover for beneficial insects and wildlife. This scenario does not apply to plantings for forage production or to critical area plantings.

327 - Organic Pollinator Habitat

Unit Type = Ac

Payment Rate, \$307.19, HU \$368.63

Description: Permanent vegetation, including mix of native grasses, legume, forbs, established on organically managed land needing permanent vegetative cover that provides habitat for pollinators. Practice applicable on cropland, odd areas, corners, etc.

Before Situation: Crops such as vegetables and small fruit crops are organically grown and harvested. Full width tillage is utilized, weeds controlled mainly by cultivation. Soil surface residue amounts average 10% or less. Soil erosion occurs with visible rills present; sediment may be moving offsite into surface water degrading water quality. Soil quality (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. Air quality may be impacted during field operations by the creation of particulates. The system provides little to no wildlife or pollinator habitat.

After Situation: Organically managed land covered with permanent pollinator habitat including a mix of native grasses, legume, and forbs (mix may also include non-native species). This practice may also have reduced soil erosion, reduced water/sediment runoff, and significant dust emissions are eliminated therefore, air quality is improved. Plants sown for pollinator habitat may also provide cover for beneficial insects and wildlife. This scenario does not apply to critical area plantings.

328 – Conservation Crop Rotation

328 - Standard Rotation

Unit Type = Ac

Payment Rate, \$1.34, HU \$1.6

Description: In this region this practice may be part of a conservation management system to: 1) Reduce sheet and rill or wind erosion 2) Improve soil quality 3) Supply nitrogen through biological nitrogen fixation to reduce energy use 4) Manage the balance of plant nutrients 5) Conserve water 6) Manage saline seeps 7) Manage plant pests (weeds, insects, and diseases). 8) Provide food for domestic livestock 9) Provide annual crops for bioenergy feed stocks 10) Provide food and cover for wildlife, including pollinator forage, cover, and nesting. This practice payment is provided to acquire the technical knowledge and skills necessary to effectively implement a conservation crop rotation. No foregone income.

Before Situation: The rotation consists primarily of low residue producing row crops. Fields range from nearly flat to C and D slopes. Erosion, soil quality, and pest management are the primary concerns.

After Situation: A rotation is established that provides additional high residue and/or perennial crops that reduce erosion, improve soil quality, and break pest cycles.

328 - Specialty Crops

Unit Type = Ac

Payment Rate, \$26.66, HU \$31.99

Description: Rotation of specialty crops (fruits and vegetable) are produced as part of a conservation management system to: 1) Reduce sheet and rill erosion 2) Reduce soil erosion from wind 3) Maintain or improve soil organic matter 4) Manage the balance of plant nutrients 5) Improve water use efficiency, and 6) Manage plant pests (weeds, insects, and diseases). This practice payment is provided to acquire the technical knowledge and skills necessary to effectively implement a conservation crop rotation on a specialty crop farm. No foregone income.

Before Situation: This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concerns.

After Situation: The rotation established adds higher residue crop(s) to the rotation that reduce erosion, improve soil quality, and break pest cycles.

328 - Small Farm <25 acres

Unit Type = Ac

Payment Rate, \$266.55, HU \$319.86

Description: Rotation of specialty crops (fruits and vegetable) are produced as part of a conservation management system to: 1) Reduce sheet and rill erosion 2) Reduce soil erosion from wind 3) Maintain or improve soil organic matter 4) Manage the balance of plant nutrient 5) Improve water use efficiency, and 6) Manage plant pests (weeds, insects, and diseases). This practice payment is provided to acquire the technical knowledge and skills necessary to effectively implement a conservation crop rotation on a specialty crop farm. No foregone income. Represents conventional (non-organic) and organic producers on small farms less than 25 acres.

Before Situation: This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concerns.

After Situation: The rotation established adds higher residue crop(s) to the rotation that reduce erosion, improve soil quality, and break pest cycles.

329 – Residue and Tillage Management

329 - No-Till/Strip-Till

Unit Type = Ac

Payment Rate, \$13.49, HU \$16.19

Description: This practice involves conversion from a clean-tilled (conventional tilled) system to no-till or strip-till (conservation tilled) system on cropland. This involves managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting soil-disturbing activities used to grow and harvest crops in systems. The practice is used to reduce sheet and rill erosion, reduce wind erosion, improve soil quality, reduce CO₂ losses from the soil, reduce energy use, increase plant available moisture and provide food and escape cover for wildlife. The no-till/strip-till system includes chemical weed control (rather than cultivation) and may also include a period of chemical fallow. System is applicable in both irrigated and non-irrigated fields.

Before Situation: Row crops or small grains are grown and harvested. Full width tillage is performed prior to planting and weed control during crop production is cultivation and chemical application. Fields are disked immediately following harvest, with additional operations in some fields to facilitate drainage or additional weed control. Residue amounts after tillage operations average 10% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Any crop residue that is present degrades and sediment/nutrient runoff from fields increases during rainfall events. Sheet and rill erosion occurs with visible rills by spring. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. This system will have a negative Soil Conditioning Index (SCI) and a high Soil Tillage Intensity Rating (STIR).

After Situation: Managing crop residue on the surface of a field year around according to the 329 practice plan while limiting soil disturbing activities to those which place nutrients, and plant crops that meet the minimum criteria in the 329 practice standard. All crops are seeded/planted with a no-till drill or no-till/strip-till planter, which minimizes soil disturbance while establishing good seed-soil contact. All residues are to be maintained on the soil surface in a uniform distribution over the entire field and not burned or removed. Crop residues provide soil surface cover throughout the year. Runoff and erosion are reduced and no rills are visible on the soil surface. Wind erosion is reduced by standing residues and surface cover. Over time, soil health is improved due to the additional biomass (crop residues), ground cover, and soil infiltration. Crop residues and/or cover crop residues left on the soil surface may maximize weed control by increasing allelopathic and mulching effect, and provides cover for wildlife. The practice would require reducing soil disturbance and erosion and increasing biomass returned to the soil in sufficient amounts to achieve increased SCI and decreased STIR.

329 - No Till Adaptive Management

Unit Type = Ac

Payment Rate, \$114.43, HU \$137.31

Description: Implementation of no till in small replicated plots to allow the producer to learn how to manage no till on their operation. Implementing replicated strip trials on a field plot to evaluate, identify and implement a particular no till management strategy. This will be done following the interim guidance for no till adaptive management to be issued to all field offices for FY15.

Before Situation: Row crops or small grains are grown and harvested. Full width tillage is performed prior to planting and weed control during crop production is cultivation and chemical application. Fields are disked immediately following harvest, with additional operations in some fields to facilitate drainage or additional weed control. Residue amounts after tillage operations average 10% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Any crop residue that is present degrades and sediment/nutrient runoff from fields increases during rainfall events. Sheet and rill erosion occurs with visible rills by spring. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. This system will have a negative Soil Conditioning Index (SCI) and a high Soil Tillage Intensity Rating (STIR). The producer is considering using no till technology, but is unsure how to manage on their operation or needs to improve the management of no till to be successful.

After Situation: Installation of this scenario will result in establishment of no till replicated plots to compare to different management strategies for no till and other residue management strategies following the guidance in the Agronomy Technical Note 11 - Adaptive Management and the Interim Guidance for No Till Adaptive Management to be issued to all field offices for FY15. Implementation involves establishing the replicated plots to evaluate one or more no till management strategies. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in no till management. Results are used to make no till management decisions to address erosion, soil health, and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 11 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content. This would be repeated for 3 years.

338 – Prescribed Burning**338 - Understory Burn (\$10,000 cap per contract year)**

Unit Type = Ac

Payment Rate, \$7.49, HU \$8.99

Description: Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications. An Understory burn can consume debris or leaf litter under controlled conditions that otherwise could burn uncontrollably and devastatingly. Prior to burning unit may need to be treated to reduce slash height and quantities. Burn should be cool enough to not cause mortality to residual stand but also must reduce litter and debris. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak is not included.)

Before Situation: Light slash accumulation in an open forest stand. Leaf litter and debris throughout stand. Small seedlings of various quantities may be present.

After Situation: Litter, debris and slash are consumed; small seedlings may be killed during active burning. Residual larger trees have little to no scorching. Post treatment fire danger is significantly reduced.

338 - Level Terrain, Herbaceous Fuel Non-Volatile (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$6.59, HU \$7.9

Description: Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, facilitate grazing distribution and maintain ecological processes. This scenario applies under the following conditions: where the terrain of the majority of the area to be burned <15% slopes with herbaceous and/or low volatile woody fuel with no high volatile fuels. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak is not included.)

Before Situation: Desirable plant composition is lacking due to reduced plant vigor, invasive species or improper livestock distribution.

After Situation: Desirable plant composition is restored, plant vigor improved and invasive species reduced. Forage production and quality for livestock and /or wildlife is improved.

338 - Level Terrain, Volatile or woody fuels (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$8.76, HU \$10.51

Description: Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, facilitate grazing distribution and maintain ecological processes. This scenario applies under the following conditions: where the terrain of the majority of the area to be burned <15% slopes with herbaceous and low volatile woody fuel with high volatile woody fuels less than 4ft tall. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak is not included.)

Before Situation: Desirable plant composition is lacking due to reduced plant vigor, invasive species or improper livestock distribution.

After Situation: Desirable plant composition is restored, plant vigor improved and invasive species reduced. Forage production and quality for livestock and /or wildlife is improved.

338 - Steep Terrain, Herbaceous Fuel (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$11.43, HU \$13.72

Description: Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, facilitate grazing distribution and maintain ecological processes. This scenario applies under the following conditions: where the terrain of the majority of the area to be burned >15% slopes with herbaceous and/or low volatile woody fuel with no high volatile fuels. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak is not included.)

Before Situation: Desirable plant composition is lacking due to reduced plant vigor, invasive species or improper livestock distribution.

After Situation: Desirable plant composition is restored, plant vigor improved and invasive species reduced. Forage production and quality for livestock and /or wildlife is improved.

338 - Steep Terrain, Volatile or Woody fuels (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$14.18, HU \$17.01

Description: Applying a prescribed burn according to designed burn plan and NRCS Prescribed Burning (338) standard and specifications in order to control undesirable species, improve wildlife habitat, improve plant productivity and/or quality, facilitate grazing distribution and maintain ecological processes. This scenario applies under the following conditions: where the terrain of the majority of the area to be burned >15% slopes with herbaceous and low volatile woody fuel with high volatile woody fuels greater than 4ft tall, but fire is still a ground fire carried by fine fuel. Burned firebreaks used to achieve total firebreak width are part of these burns. (Constructed firebreak is not included.)

Before Situation: Desirable plant composition is lacking due to reduced plant vigor, invasive species or improper livestock distribution.

After Situation: Desirable plant composition is restored, plant vigor improved and invasive species reduced. Forage production and quality for livestock and /or wildlife is improved.

340 – Cover Crop**340 - Cover Crop-herbicide or mechanical termination**

Unit Type = Ac

Payment Rate, \$70.74, HU \$84.89

Description: Irrigated, drill seeded, mixed cover, planted to address one or more of the following purposes: reduce erosion from wind and water, improve soil organic matter content, capture and recycle or redistribute nutrients in the soil profile, promote biological nitrogen fixation and reduce energy use, increase biodiversity, suppress weeds, manage soil moisture, or minimize and reduce soil compaction. The cover is terminated by an herbicide application or mechanical operation.

Before Situation: Little or no crop residue remains on the soil surface until establishment of the next crop.

After Situation: The soil surface is covered until establishment of the next crop. The cover crop and herbicide application or mechanical operation is compatible with other components of the cropping system. Noxious or invasive weeds are not established with the cover crop, and cover crop residue is not burned.

340 - Cover Crop-winter kill termination

Unit Type = Ac

Payment Rate, \$43.79, HU \$52.55

Description: This is a dryland seeding to establish a cover that address one or more of the following purposes: reduce erosion from wind and water, improve soil organic matter content, capture and recycle or redistribute nutrients in the soil profile, suppress weeds, or manage soil moisture. The cover is terminated by winter kill or mechanical operation and provides a suitable cover for establishment of planned crop or perennial grasses.

Before Situation: Little or no crop residue remains on the soil surface until establishment of the next crop.

After Situation: The soil surface is covered until establishment of the next crop. The cover crop is compatible with other components of the cropping system. Noxious or invasive weeds are not established with the cover crop, and cover crop residue is not burned.

340 - Organic Cover Crop

Unit Type = Ac

Payment Rate, \$90.51, HU \$108.61

Description: Irrigated, drill seeded, mixed cover, planted to address one or more of the following purposes: reduce erosion from wind and water, improve soil organic matter content, capture and recycle or redistribute nutrients in the soil profile, promote biological nitrogen fixation and reduce energy use, increase biodiversity, suppress weeds, manage soil moisture, or minimize and reduce soil compaction. The seed is certified organic and the cover is terminated by a mechanical operation.

Before Situation: Little or no crop residue remains on the soil surface until establishment of the next crop.

After Situation: The soil surface is covered until establishment of the next crop. The cover crop and mechanical operation is compatible with other components of the cropping system. Noxious or invasive weeds are not established with the cover crop, and cover crop residue is not burned.

340 - Cover Crop Adaptive Mgt

Unit Type = Ac

Payment Rate, \$64.78, HU \$77.73

Description: Implementation of cover crops in small replicated plots to allow the producer to learn how to manage cover crops on their operation. Includes implementing replicated strip trials on a field plot to evaluate, identify and implement a particular cover crop management strategy. This will be done following the interim guidance for cover crop adaptive management to be issued to all field offices.

Before Situation: Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills by spring. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil. The producer is considering the use of cover crops but is unsure how to manage on their unique operation or is seeking a way to better manage cover crops in the operation.

After Situation: Installation of this scenario will result in establishment of a cover crop replicated plots to compare to different management strategies for cover crop management following the guidance in the Agronomy Technical Note 11 - Adaptive Management and the Interim Guidance for Cover Crop Adaptive Management to be issued to all field offices for FY15. Implementation involves establishing the replicated plots to evaluate one or more cover crop management strategies. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in cover crop management. Results are used to make cover crop management decisions to address erosion and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 11 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content. This would be repeated for 3 years.

342 – Critical Area Planting**342 - Grass/legume mix-normal tillage**

Unit Type = Ac

Payment Rate, \$198.53, HU \$238.24

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Includes seedbed preparation with tillage implements, grass/legume seed, companion crop, and fertilizer with application.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, wind, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply 30 lbs. of nitrogen, 60 lbs. of phosphate, and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Smooth Brome grass (15 lbs./ac), and Red Clover (8 lbs./ac) with a nurse crop of oats at a seeding rate of 48 lbs. per acre.

342 - Organic Grass/legume mix-normal tillage

Unit Type = Ac

Payment Rate, \$221.72, HU \$266.07

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Includes seedbed preparation with tillage implements, grass/legume seed, and companion crop. Certified organic seed and fertilizer based upon NOP approved fertilizer inputs will be used where available.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. The plant nutrients will supply by a blend of organic soil amendments. Apply 30 lbs. of nitrogen, 60 lbs. of phosphate, and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Smooth Brome grass (15 lbs./ac) and Red Clover (8 lbs./ac) with a nurse crop of oats at a seeding rate of 48 lbs. per acre. Organic seed will be used where available. Manure may be used in lieu of a commercially blended product as long as the manure is tested and the correct quantity of manure is calculated such that the specified 30-60-60 N-P2O5-K2O requirement is met.

342 - Native seeding - normal tillage

Unit Type = Ac

Payment Rate, \$241.24, HU \$289.49

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural occurrence or a newly constructed conservation practice. Includes seedbed preparation with tillage implements, native grass seed, and fertilizer.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from recent natural occurrences (fire, flood, etc.) or due to newly constructed conservation practices such as waterways, terraces, water and sediment basins or dams. The exposed areas will be subject to wind erosion, sheet and rill erosion, or visible rills may have already occurred. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by applying fertilizer and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply 60 lbs. of phosphate and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Big Bluestem (14 lbs./ac) and Switchgrass (2 lbs./ac) with a nurse crop of oats at a seeding rate of 32 lbs. per acre.

342 - Grass/legume mix-moderate grading

Unit Type = Ac

Payment Rate, \$816.13, HU \$979.35

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Includes a dozer for grading and shaping of small gullies, seedbed preparation with tillage implements, grass/legume seed, companion crop, and fertilizer with application.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc.) or human disturbance. The exposed areas have visible rills and small gullies averaging 1 foot in depth and 1 foot in width. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by grading and shaping the small gullies with a dozer and then applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply 30 lbs. of nitrogen, 60 lbs. of phosphate, and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Smooth Bromegrass (15 lbs./ac) and Red Clover (8 lbs./ac) with a nurse crop of oats at a seeding rate of 48 lbs. per acre.

342 - Native seeding-moderate grading

Unit Type = Ac

Payment Rate, \$858.83, HU \$1030.6

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Includes a dozer for grading and shaping of small gullies, seedbed preparation with tillage implements, native grass seed, companion crop, and fertilizer with application.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc.) or human disturbance. The exposed areas have visible rills and small gullies averaging 1 foot in depth and 1 foot in width. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by grading and shaping the small gullies with a dozer and then applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply 60 lbs. of phosphate and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Big Bluestem (14 lbs./ac) and Switchgrass (2 lbs./ac) with a nurse crop of oats at a seeding rate of 32 lbs. per acre.

342 - Grass/legume mix-heavy grading

Unit Type = Ac

Payment Rate, \$1087.63, HU \$1305.15

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Includes a dozer for grading and shaping of moderate to severe gullies, seedbed preparation with tillage implements, grass/legume seed, companion crop, and fertilizer with application.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc.) or human disturbance. The exposed areas have visible rills and moderate to severe gullies averaging 3 feet in depth and 3 feet in width. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by grading and shaping the moderate to severe gullies with a dozer (8 hours) and then applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply 30 lbs. of nitrogen, 60 lbs. of phosphate, and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Smooth Bromegrass (15 lbs./ac) and Red Clover (8 lbs./ac) with a nurse crop of oats at a seeding rate of 48 lbs. per acre.

342 - Native seeding-heavy grading

Unit Type = Ac

Payment Rate, \$1311.6, HU \$1573.92

Description: Establishment of permanent vegetation on a site that is void or nearly void of vegetation due to a natural or human disturbance. Includes a dozer for grading and shaping of moderate to severe gullies, seedbed preparation with tillage implements, grass/legume seed, companion crop, and fertilizer with application.

Before Situation: Areas that are void or nearly void of vegetation, resulting in bare soil being exposed to erosive processes. The exposed areas may be caused from natural occurrences (fire, flood, etc.) or human disturbance. The exposed areas have visible rills and moderate to severe gullies averaging 3 feet in depth and 3 feet in width. Runoff from the area flows into streams, water courses or other water bodies causing degradation to the receiving waters. The soil typically has a pH imbalance and low fertility.

After Situation: This critical area is stabilized by grading and shaping the moderate to severe gullies with a dozer (8 hours) and then applying fertilizer, lime and seed. Soil amendments will be incorporated at a depth of six inches to improve fertility and ensure establishment of permanent vegetative cover. Apply 60 lbs. of phosphate and 60 lbs. of potash. Prepare a firm, weed free seedbed so that proper germination and stand establishment are ensured. Once the seedbed has been prepared, drill the following mixture for a vegetative cover: Big Bluestem (14 lbs./ac) and Switchgrass (2 lbs./ac) with a nurse crop of oats at a seeding rate of 32 lbs. per acre.

342 - Drill Seed, compost, mulch

Unit Type = Ac

Payment Rate, \$309.26, HU \$371.12

Description: Establishment of permanent vegetation on disturbed sites that have high erosion rates and or physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices. Includes organic amendment and application, seedbed preparation, grass/legume seed and drill application.

Before Situation: Slopes that are too steep for safe equipment operation that are void or nearly void of vegetation resulting in bare soil being exposed to excessive erosion. The exposed areas may be caused by mining, construction or reclamation activities. Surface soils are typically mixtures of various subsoil materials that are low in organic matter and available nitrogen and phosphorus.

After Situation: This critical area is stabilized by application of organic amendments and the establishment of sod forming perennial vegetation. Seed is applied at a 40 seed per square foot rate. Plan and apply mulch applications for critical areas where rapid establishment of seeded species is essential or where one or more of the following factors are likely to cause failure of the planting, as determined by the planner.

- Low or erratic precipitation
- Droughty or slowly permeable soils
- High soil temperatures
- Erosive soils
- Drying winds

342 - Hydro Seed

Unit Type = Ac

Payment Rate, \$815.4, HU \$978.48

Description: Establishment of permanent vegetation on steep slopes that have high erosion rates and or physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices. Includes organic amendment, grass/legume seed and hydroseed application.

Before Situation: Slopes that are too steep for safe equipment operation that are void or nearly void of vegetation resulting in bare soil being exposed to excessive erosion. The exposed areas may be caused by mining, construction or reclamation activities. Surface soils are typically mixtures of various subsoil materials that are low in organic matter and available nitrogen and phosphorus.

After Situation: This critical area is stabilized by application of organic amendments, mulch and seed with a hydroseeder. Seed is applied at an 80 seed per square foot rate.

342 - Hand seed and Incorporate

Unit Type = Ac

Payment Rate, \$412.27, HU \$494.72

Description: Establishment of permanent vegetation on steep slopes or small areas that have high erosion rates and or physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices. Includes compost, grass/legume seed and hand application and incorporation.

Before Situation: Areas that are too steep or small for safe equipment operation that are void or nearly void of vegetation resulting in bare soil being exposed to excessive erosion. The exposed areas may be caused by mining, construction or reclamation activities. Surface soils are typically mixtures of various subsoil materials that are low in organic matter and available nitrogen and phosphorus.

After Situation: This critical area is stabilized by application of organic amendments, mulch and seed by hand application. Seed is applied at an 80 seed per square foot rate.

345 – Residue and Tillage Management

345 - Reduced Till

Unit Type = Ac

Payment Rate, \$28.45, HU \$34.14

Description: Reduced Till is managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting the soil-disturbing activities used to grow crops in systems where the entire field surface is tilled prior to planting. This practice includes tillage methods commonly referred to as mulch tillage or chiseling and disking. It applies to stubble mulching on summer-fallowed land, to tillage for annually planted crops and to tillage for planted crops and to tillage for planting perennial crops. All residue shall be uniformly distributed over the entire field, be present on the soil surface throughout the critical wind erosion period(s), and not burned or removed. RUSLE2 or WEPS models will be used to review the farming operation and determine if enough residue is being retained, throughout the rotation, to keep soil loss below T. Residue and tillage management, Reduced Till is planned and applied to address one or more of the following purposes: reduce sheet and rill erosion, reduce wind erosion, improve soil quality, reduce energy use, or increase plant-available moisture. This practice is applicable to both irrigated and non-irrigated fields and conventional or organic farming operations.

Before Situation: Full width tillage is performed to incorporate post harvest crop residues, prepare the seed bed, and manage weeds. Crop residue cover is not maintained on the soil surface. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to erosion (wind & water) during fallow periods. Runoff from the fields may flow into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue monocultures, and long periods of bare soil.

After Situation: Following harvest, at least 30% of the crop residues will be maintained on the soil surface, during critical erosion periods or until the next crop is planted. Soil erosion losses will be kept below T as documented in RUSLE2 and or WEPS models. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity in the cropping system.

345 - Reduced Till 5 ac. or less

Unit Type = Ea

Payment Rate, \$113.78, HU \$136.53

Description: This practice involves conversion from a clean or mulch tilled (conventional tilled) system to a reduced till (conservation tilled) system on 5 acres or less of cropland. Reduced Till is managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting the soil-disturbing activities used to grow crops in systems where the entire field surface is tilled prior to planting. This practice includes tillage methods commonly referred to as mulch tillage or chiseling and disking. It applies to stubble mulching on summer-fallowed land, to tillage for annually planted crops and to tillage for planted crops and to tillage for planting perennial crops. All residue shall be uniformly distributed over the entire field, be present on the soil surface throughout the critical wind erosion period(s), and not burned or removed. RUSLE2 or WEPS models will be used to review the farming operation and determine if enough residue is being retained, throughout the rotation, to keep soil loss below T. The STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used. Residue and tillage management, Reduced Till is planned and applied to address one or more of the following purposes: reduce sheet and rill erosion, reduce wind erosion, improve soil quality, reduce energy use, or increase plant-available moisture. This practice is applicable to both irrigated and non-irrigated fields and conventional or organic farming operations.

Before Situation: Crops such as various vegetable and fruit crops along with row crops are grown and harvested throughout the year. Full width tillage is performed prior to planting and weed control during crop production is cultivation and mulching. Fields are disked immediately following harvest, with additional operations in some fields to facilitate drainage or additional weed control. Residue amounts after tillage operations average 10% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Any crop residue that is present degrades and sediment/nutrient runoff from fields increases during rainfall events. Wind and/or water erosion occurs with visible rills by spring. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue, and long periods of bare soil. This system will typically have a negative Soil Conditioning Index (SCI) and a high Soil Tillage Intensity Rating (STIR).

After Situation: Following harvest, at least 30% of the crop residues will be maintained on the soil surface, during critical erosion periods or until the next crop is planted. Soil erosion losses will be kept below T as documented in RUSLE2 and or WEPS models. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity in the cropping system. The STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.

345 - Reduced Till Adaptive Mgt

Unit Type = Ac

Payment Rate, \$129.38, HU \$155.26

Description: Implementation of Reduced Till in small replicated plots to allow the producer to learn how to manage reduced till on their operation. Includes implementing replicated strip trials on a field plot to evaluate, identify and implement a particular reduced till management strategy. This will be done following the interim guidance for reduced till adaptive management to be issued to all field offices for FY15.

Before Situation: Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills by spring. Spring tillage and seedbed preparation activities occur as early as possible in the late winter and early spring. Weed control is accomplished primarily through tillage, requiring multiple operations. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue monocultures, and long periods of bare soil. The producer is considering using mulch till technology, but is unsure how to manage on their operation or needs to improve the management of mulch till to be successful.

After Situation: Installation of this scenario will result in establishment of reduced till replicated plots to compare to different management strategies for reduced till and other residue management strategies following the guidance in the Agronomy Technical Note 11 - Adaptive Management and the Interim Guidance for Reduced Till Adaptive Management to be issued to all field offices for FY15. Implementation involves establishing the replicated plots to evaluate one or more reduced till management strategies. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in reduced till management. Results are used to make reduced till management decisions to address erosion, soil health, and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 11 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content. This would be repeated for 3 years.

350 – Sediment Basin**350 - Excavated volume**

Unit Type = Cu Yd

Payment Rate, \$1.79, HU \$2.15

Description: An excavated sediment basin in an existing drainage way on a farm for purpose of trapping sediment and preserving the capacity of reservoirs, ditches, canals, diversions, waterways and streams and to prevent undesirable deposition on bottom lands and other developed lands. The sediment basin is created solely by excavation and impounds less than 3 feet against the embankment or spoil. Excavated material is spoiled, not placed in a designed embankment. Earthen spillway is constructed as needed.

Before Situation: Disturbed areas on all land uses that have excessive erosion lead to deterioration of receiving waters due to excessive sedimentation.

After Situation: The typical sediment basin is constructed by excavating and spreading the spoil outside the pool area using a dozer or similar excavation equipment.

350 - Embankment earthen basin with no pipe

Unit Type = Cu Yd

Payment Rate, \$1.79, HU \$2.15

Description: An low hazard class embankment earthen sediment basin in an existing drainage way on a farm for purpose of trapping sediment and preserving the capacity of reservoirs, ditches, canals, diversions, waterways and streams and to prevent undesirable deposition on bottom lands and other developed lands. An earthen embankment will be constructed with an earthen auxiliary spillway, as designed. Surface water causes the sediment (and potentially pesticides and nutrients) to be transported into the riparian areas and water bodies downstream.

Before Situation: Disturbed areas on all land uses that have excessive erosion lead to deterioration of receiving waters due to excessive sedimentation.

After Situation: The typical sediment basin is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed to create an embankment. The embankment will be designed and constructed according the pond standard (378). The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The sediment storage capacity should be a minimum of 900 cubic feet per acre of disturbed area. The detention storage should be a minimum of 3600 cubic feet per acre of drainage area. The earthen auxiliary spillway will be constructed as designed based on Pond standard (378). No principal spillway will be used.

350 - Embankment earthen basin with pipe

Unit Type = Cu Yd

Payment Rate, \$3.89, HU \$4.66

Description: An low hazard class embankment earthen sediment basin in an existing drainage way on a farm for purpose of trapping sediment and preserving the capacity of reservoirs, ditches, canals, diversions, waterways and streams and to prevent undesirable deposition on bottom lands and other developed lands. An earthen embankment will be constructed with a principal spillway conduit and earthen auxiliary spillway, as designed. Surface water causes the sediment (and potentially pesticides and nutrients) to be transported into the riparian areas and water bodies downstream.

Before Situation: Disturbed areas on all land uses that have excessive erosion lead to deterioration of receiving waters due to excessive sedimentation.

After Situation: The typical sediment basin is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed to create an embankment. The embankment will be designed and constructed according the Pond standard (378). The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The sediment storage capacity should be a minimum of 900 cubic feet per acre of disturbed area. The detention storage should be a minimum of 3600 cubic feet per acre of drainage area. The principal spillway is created using an approved conduit material and filter diaphragm. The earthen auxiliary spillway will be constructed as designed based on Pond standard (378).

356 – Dike356 - Dike

Unit Type = Cu Yd

Payment Rate, \$1.97, HU \$2.37

Description: Construction of an earthen embankment barrier to control water flow and level.

Before Situation: Site is subject to flooding or overland flow which poses a potential for damage to land or property. Site may also require control of water level for purposes connected with crop production; fish and wildlife management; or wetland maintenance, improvement, restoration, or construction. An adequate quantity of soil suitable for constructing an earthen dike is available at an economical haul distance. Resource concerns include Soil Erosion, Excessive runoff, flooding or ponding

After Situation: Water level controlled by a stable earthen structure. Potential hazard to public safety, land or property mitigated; environmental benefit provided.

359 – Waste Treatment Lagoon359 - Waste Treatment Lagoon

Unit Type = Cu Ft

Payment Rate, \$0.17, HU \$0.20

Description: A waste treatment lagoon is a component of a waste management system that provides biological treatment of manure and other byproducts of animal agricultural operations by reducing the pollution potential.

Before Situation: Operator presently has a confined animal feeding operation without a waste management system adequate to handle the waste stream leaving the animal production facilities. Manure and other agricultural waste by-products are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or are being transported but not properly utilized or disposed of. This situation poses an environmental threat of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources.

After Situation: A waste treatment lagoon constructed from on-site material provides an environmentally safe facility for storing manure and other agricultural waste by-products. This facility provides the landowner a means of storing and treating waste until it can be utilized in a proper manner in accordance with a nutrient management plan.

Typical design size : Design Volume 439,440 ft³ (~5500CY); 260' X 208' (top); 3:1 inside and outside side slopes; cut/fill ratio = 1.25; total depth = 13'; 1' freeboard (not included in design volume)

362 – Diversion362 - Diversion

Unit Type = Cu Yd

Payment Rate, \$1.43, HU \$1.71

Description: An earthen channel and ridge constructed across long slopes, to divert runoff away from farmsteads, agricultural waste systems, gullies, critical erosion areas, construction areas or other sensitive areas. Outlet may be waterway, underground outlet. or other suitable outlet. Channel may be level or gradient, and the ridge may be vegetated or farmed. The quantity of excavation and fill is balanced.

Before Situation: Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also may be associated with animal feeding operations, with surface or roof runoff to be diverted from potential contamination sources, or contaminated water needing diverted to storage or treatment structures.

After Situation: Diversion is installed using a dozer, scraper, or other earth-moving equipment. Field system meets "T", contaminated water or "clean" storm water runoff is diverted away from a contamination source to minimize the volume of runoff that is contaminated by agricultural waste.

362 - Diversion Minor Structure

Unit Type = Cu Yd

Payment Rate, \$5.76, HU \$6.91

Description: An earthen channel and ridge on the lower side constructed across the slope, commonly referred to as road bars, kickers, and gully plugs. The drainage area above an individual structure shall be 15 acres or less. The total area above several structures in series shall be limited to 40 acres or less.

Before Situation: Soil erosion as a result of gully, rill, or sheet erosion which exceeds "T" from farm fields, range land, earthen roadways, and other locations. Also may be associated with animal feeding operations, with surface or roof runoff to be diverted from potential contamination sources, or contaminated water needing diverted to storage or treatment structures.

After Situation: Diversion is installed using a backhoe, dozer, or other earth-moving equipment. Field system meets "T", contaminated water or "clean" storm water runoff is diverted away from a contamination source to minimize the volume of runoff that is contaminated by agricultural waste.

362 - Net Wire Diversion

Unit Type = Ft

Payment Rate, \$8.43, HU \$10.12

Description: A low barrier constructed of posts and mesh wire across shallow depressions or other areas where surface water concentrates. Practice is installed in drainage areas located primarily on range land to reduce sheet and rill erosion. Wire mesh diversions trap sediment, spread or disperse overland water flows to reduce erosion from concentrated flow and aid in the infiltration of surface flows by slowing water movement.

Before Situation: Soil erosion is accelerated as a result of gully, rill, or sheet erosion which exceeds "T" on range land, pasture land, and other locations due to excessive sheet flow. Excessive sheet flow results in head cuts, small channels or gullies and increased sheet erosion. Due to excessive erosion more precipitation is running off the site versus infiltrating the soil.

After Situation: Net Wire Diversion is installed using post driving equipment and/or manual labor. Sheet flows are slowed and or spread across the land form to decrease concentrated flow and resulting soil erosion (sheet, rill, and small gullies) and aid the soil in the infiltration of sheet flows.

378 – Pond**378 - Excavated Pit**

Unit Type = Cu Yd

Payment Rate, \$1.99, HU \$2.39

Description: A low-hazard water impoundment structure on agricultural lands to improve water quality and to provide water for livestock, fish and wildlife, recreation, fire control, crop and orchard irrigation, and other related uses. Pond is created solely by excavation and impounds less than 3 feet against the embankment or spoil. Excavated material is spoiled, not placed in a designed embankment. Earthen spillway is constructed as needed.

Before Situation: Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, fire control or irrigation. Failure of the pond will not result in loss of life; damage to homes, commercial or industrial buildings, main highways, or railroads; or in interruption of the use or service of public utilities.

After Situation: The typical pond is constructed by excavating 3100 cubic yards and spreading the spoil outside the pool area using a dozer or similar excavation equipment. Vegetation will be completed under critical area planting (342).

378 - Excavated Pit, Shallow Soils

Unit Type = Cu Yd

Payment Rate, \$2.35, HU \$2.82

Description: A low-hazard water impoundment structure on agricultural lands to improve water quality and to provide water for livestock, fish and wildlife, recreation, fire control, crop and orchard irrigation, and other related uses. Pond is created solely by excavation and impounds less than 3 feet against the embankment or spoil. Excavated material is spoiled, not placed in a designed embankment. Earthen spillway is constructed as needed.

Before Situation: Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, fire control or irrigation. Failure of the pond will not result in loss of life; damage to homes, commercial or industrial buildings, main highways, or railroads; or in interruption of the use or service of public utilities.

After Situation: The typical pond is constructed by excavating 3100 cubic yards and spreading the spoil outside the pool area using a dozer or similar excavation equipment. Vegetation will be completed under critical area planting (342).

378 - Embankment Pond without Pipe

Unit Type = Cu Yd

Payment Rate, \$2.47, HU \$2.96

Description: A water impoundment structure on agricultural land to improve water quality or to provide water for livestock, fish and wildlife, fire control, and other related uses. An earthen embankment will be constructed with an earthen auxiliary spillway.

Before Situation: Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, and fire control. Failure of the embankment will not result in loss of life or damages of any kind.

After Situation: The typical pond is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed, and using 8933 cubic yards (200 foot long dam; 20 foot tall) to create an embankment. Cut-off trench using 307 cubic yards (200-foot long with side slopes of 2:1)The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The earthen auxiliary spillway will be constructed as designed. No principle spillway pipe will be used. Vegetation will be completed under critical area planting (342).

378 - Embankment Pond with Pipe

Unit Type = Cu Yd

Payment Rate, \$3.99, HU \$4.79

Description: A water impoundment structure on agricultural land to improve water quality or to provide water for livestock, fish and wildlife, fire control, and other related uses. An earthen embankment will be constructed with an earthen auxiliary spillway.

Before Situation: Area exists where water could naturally pool or run off to create a pond for livestock, wildlife, and fire control. Failure of the embankment will not result in loss of life or damages of any kind.

After Situation: The typical pond is constructed by excavating the pool area, constructing the auxiliary spillway, preparing the foundation as designed, and using 8933 cubic yards (200 foot long dam; 20 foot tall) to create an embankment. Cut-off trench using 307 cubic yards (200-foot long with side slopes of 2:1)The product of the storage times the effective height of the dam is less than 3,000. The effective height of the dam is 35 feet or less. The earthen auxiliary spillway will be constructed as designed.

380 – Windbreak/Shelterbelt Establishment**380 - 1 row windbreak, shrubs, hand planted**

Unit Type = Ft

Payment Rate, \$1.47, HU \$1.76

Description: Single row of shrubs for wind protection, wildlife habitat, or snow management. Shrubs planted by hand 4 feet apart. This practice is applied to crop, pasture or range lands.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, or to manage snow deposition. Additional wildlife food and cover.

380 - 1 row windbreak, trees, hand planted

Unit Type = Ft

Payment Rate, \$1.28, HU \$1.53

Description: Single row of conifer tree seedlings for wind protection, wildlife habitat, or snow management. Trees planted by hand 10 feet apart. This practice is applied to crop, pasture or range lands.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, or to manage snow deposition. Additional wildlife food and cover.

380 - 2-row windbreak, shrubs, machine planted

Unit Type = Ft

Payment Rate, \$2.54, HU \$3.04

Description: Two rows of shrubs for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Shrubs planted with a tree planting machine 4 feet apart in the row with rows 16 feet apart.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

380 - 2-row windbreak, trees, machine planted

Unit Type = Ft

Payment Rate, \$2.63, HU \$3.16

Description: Two rows of hardwood trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Trees planted with a tree planting machine 10 feet apart in the row with rows 16 feet apart. Herbivores (deer, rabbits, etc.) are NOT expected to browse tree seedlings, tree protection is not needed.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

380 - 2-row windbreak, trees, machine planted, with tubes

Unit Type = Ft

Payment Rate, \$3.31, HU \$3.97

Description: Two rows of hardwood tree seedlings for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Trees planted with a tree planting machine 10 feet apart in the row with rows 16 feet apart. Herbivore (deer, rabbits, etc.) damage is likely, so each tree must be protected with a rigid tube tree shelter.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

380 - 3 or more row windbreak, shrub, machine planted

Unit Type = Ft

Payment Rate, \$4.11, HU \$4.93

Description: Three or more rows of shrubs for wind protection, energy conservation, wildlife habitat, air quality, snow management. Shrubs planted with a tree planting machine, 4 feet apart in the row with rows 16 feet apart.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screening or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

380 - 3 or more tree rows machine planted windbreak

Unit Type = Ft

Payment Rate, \$3.7, HU \$4.44

Description: Three or more rows of trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. The outside rows are conifers the inside row(s) are hardwoods. Trees 10 feet apart with rows 16 feet apart, planted with a tree planting machine. Herbivores are not expected to browse planted seedlings, so tree shelters are not needed.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screening or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

380 - 3 or more row windbreak, trees, machine planted, with tubes

Unit Type = Ft

Payment Rate, \$4.58, HU \$5.49

Description: Three or more rows of hardwood trees for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen. Trees planted with a tree planting machine 10 feet apart in the row with rows 16 feet apart. Herbivore (deer, rabbits, etc.) damage is likely, so each tree must be protected with a rigid tube tree shelter.

Before Situation: Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation: Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

382 – Fence**382 - Multi Strand Barbed/Smooth Wire**

Unit Type = Ft

Payment Rate, \$1.58, HU \$1.89

Description: Multi-strand, Barbed or Smooth Wire - Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Constructed using fencing materials rather than a pre-manufactured gate.

Before Situation: On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. Reduced vegetative cover increases the opportunity for encroachment of noxious and invasive weeds.

After Situation: Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, etc... Four strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

382 - Multi Strand Barbed or smooth Wire Difficult terrain

Unit Type = Ft

Payment Rate, \$2.03, HU \$2.44

Description: Barbed, Smooth ,or Woven Wire Difficult Installation - Installation of fence in difficult situations will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Constructed using fencing materials rather than a pre-manufactured gate.

Before Situation: On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. Reduced vegetative cover increases the opportunity for encroachment of noxious and invasive weeds. Fence installation conditions are for difficult sites such as poor access, steep slopes, rocky sites, dense brush, wet conditions etc.

After Situation: Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, brace posts, etc... Fence will be installed with wildlife friendly considerations.

382 - Woven Wire

Unit Type = Ft

Payment Rate, \$2.11, HU \$2.53

Description: Woven - Installation of fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation: On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, livestock access to water bodies is uncontrolled. Reduced vegetative cover increases opportunity for encroachment of noxious and invasive weeds.

After Situation: Installation of fence will allow for implementation of a rotational grazing plan that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Woven wire fence includes posts, wire, fasteners, gates, etc... Woven wire is typically used in applications with sheep, goats, hogs, wildlife exclusion, shelterbelt/tree protection, etc.

382 - Electric

Unit Type = Ft

Payment Rate, \$1.26, HU \$1.51

Description: Electric - Installation of fence will allow for implementation of a grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds.

Before Situation: On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. Reduced vegetative cover increases the opportunity for encroachment of noxious and invasive weeds.

After Situation: Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, fence charger, etc... Two to three strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

382 - Confinement

Unit Type = Ft

Payment Rate, \$3.2, HU \$3.83

Description: Installation of fence associated with livestock feeding operations and/or wildlife access to prevent conflicts between humans and livestock or wildlife species.

Before Situation: Wildlife negatively impacting sensitive areas such as riparian areas, windbreaks and shelterbelts or feed storage. Disease transmission from wildlife possess a significant health risk to domestic animals.

After Situation: Installation of fence reduces resource concerns associated with livestock and/or wildlife access and prevents conflicts between humans and threatened, endangered or sensitive species. Fence includes posts, wire, fasteners, gates, etc...

382 - Safety

Unit Type = Ft

Payment Rate, \$3.73, HU \$4.47

Description: A barrier (fence) implemented on an NRCS constructed waste storage system according to engineering design to exclude human access. Permanently installed fence built to (1) keep humans away from waste ponds & lagoons, or (2) to protect sensitive areas (riparian areas, wetlands, springs, etc.) from heavy livestock pressure. Heavy grade fence materials and close post spacing required.

Before Situation: Where a NRCS designed and constructed waste storage pond is planned whereby significant risk to human safety is determined to be evident. Livestock has access to sensitive areas that may cause detrimental effect to animal/human health and wildlife habitat. Resource concerns affected are plant health and vigor, wildlife habitat, compaction of soils, runoff of sediment or water quality due to turbidity..

After Situation: Humans and livestock are excluded from the waste storage pond for safety purposes by installing a fence around a waste holding pond. Woven wire fence with one strand of barb wire on top with a gate. Improved livestock control and access to water or other sensitive areas will promote safety for livestock/humans improve health, vigor of sensitive species, limiting soil erosion, and condition.

382 - Temporary

Unit Type = Ft

Payment Rate, \$0.45, HU \$0.54

Description: Electric - Installation of temporary 1-2 wire fence to allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence is only present when livestock are present, may be removed when grazing period is finished.

Before Situation: On grazing lands health and vigor are negatively impacted by poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality is impacted by increased erosion and runoff, cattle access to water bodies is uncontrolled. Reduced vegetative cover increases the opportunity for encroachment of noxious and invasive weeds. Existing fence on pasture boundaries will be utilized to tie in with the temporary electric fence.

After Situation: Installation of fence will allow for implementation of grazing management that allows for an adequate rest and recovery period, protection of sensitive area, improved water quality, reduction of noxious and invasive weeds. Fence includes posts, wire, fasteners, gates, fence charger, etc... Single strand wire is commonly installed. Fence will be installed with wildlife friendly considerations.

384 – Woody Residue Treatment**384 - Lop and Scatter, light**

Unit Type = Ac

Payment Rate, \$40.73, HU \$48.88

Description: Treating an area of forest slash or following a juniper chaining to reduce hazardous fuels and the risk of insect and disease, improve organic matter and reduce erosion while improving water quality.

Before Situation: Woody material resulting from a silvicultural practice such as pruning or a light thinning operation is causing both fire hazard and pest issues. Up to 100 trees and/or slash per acre needing treatment, or majority of small (less than 3 inches) material.

After Situation: Fire and pest issues are reduced with slash spread out and in contact with the ground. Additional benefits include reduced soil movement. The soil is protected and/or enhanced.

384 - Lop and Scatter, medium

Unit Type = Ac

Payment Rate, \$68.32, HU \$81.98

Description: Treating an area of forest slash or following a juniper chaining to reduce hazardous fuels and the risk of insect and disease, improve organic matter and reduce erosion while improving water quality.

Before Situation: Woody material resulting from a silvicultural practice such as pruning or a light thinning operation is causing both fire hazard and pest issues. Up to 100-300 trees and/or slash per acre needing treatment, or majority of 3-6 inch material.

After Situation: Fire and pest issues are reduced with slash spread out and in contact with the ground. Additional benefits include reduced soil movement. The soil is protected and/or enhanced.

384 - Lop and Scatter, heavy

Unit Type = Ac

Payment Rate, \$103.79, HU \$124.54

Description: Treating an area of forest slash or following a juniper chaining to reduce hazardous fuels and the risk of insect and disease, improve organic matter and reduce erosion while improving water quality.

Before Situation: Woody material resulting from a silvicultural practice such as pruning or a light thinning operation is causing both fire hazard and pest issues. Greater than 300 trees and/or slash per acre needing treatment, or majority of greater than 6 inch material.

After Situation: Fire and pest issues are reduced with slash spread out and in contact with the ground. Additional benefits include reduced soil movement. The soil is protected and/or enhanced.

384 - Piling and Burning

Unit Type = Ac

Payment Rate, \$110.39, HU \$132.47

Description: Reducing woody waste created during forestry, agroforestry and horticultural activities by gathering, piling, and burning (under appropriate weather conditions) to remove piles to achieve management objectives. Does not include transport from property to a commercial facility.

Before Situation: Woody residue causes management issues including resource access, fire hazard and sites for harboring pests.

After Situation: Fire and pest issues are reduced.

384 - Chipping and hauling off-site

Unit Type = Ac

Payment Rate, \$174.68, HU \$209.61

Description: Reducing woody waste created during forestry, agroforestry and horticultural activities by gathering, chipping, and hauling off site to achieve management objectives. Does not include transport from property to a commercial facility.

Before Situation: Woody residue causes management issues including resource access, fire hazard and sites for harboring pests.

After Situation: Fire and pest issues are reduced. Air and energy resources are conserved.

384 - Forest Slash Treatment - Heavy

Unit Type = Ac

Payment Rate, \$301.02, HU \$361.22

Description: Treating an area of significant woody plant residues to reduce hazardous fuels and the risk of insect and disease, improve organic matter, decrease unwanted habitat, and reduce erosion while improving water quality. Slash is to be lopped/treated/crushed within a foot of the ground or moved off site to meet state fire hazard reduction standards. Heavy equipment is used such as masticators, mulchers, drum choppers, etc. Hand work with chainsaws is used on steep slopes.

Before Situation: Heavy woody material (difficult to walk through) resulting from silvicultural/management operations caused both fire hazard, access, potential harm to humans and animals, and pest issues.

After Situation: Fire, access, and pest issues are reduced with slash spread out and in contact with the ground. An additional benefit is reduced soil movement.

384 - Restoration/conservation treatment following catastrophic events

Unit Type = Ac

Payment Rate, \$545.89, HU \$655.07

Description: The use of a combination of hand (chainsaw) and heavy equipment similar to those used in logging to treat slash resulting from catastrophic events such as fire, wind, severe pest outbreak, ice storm, etc. This scenario will remove/treat the larger material the size of which is consistent with the large equipment used.

Before Situation: A large amount of slash and woody residue is created as a result of a non-silvicultural event such as a wind storm, wildfire, ice storm, pest outbreak, etc. Because the slash and residue is created by a catastrophic event that can cause tree-lodging, snags, broken tops, etc.; treatment is both difficult and dangerous. The presence of this material causes adverse effects on the forest include limiting access for management purposes, increasing the wildfire hazard, increasing the risk of potential harm to humans and livestock, and providing harboring sites for pests.

After Situation: The material resulting from the catastrophic event is reduced to a level that will minimize the resource concerns.

384 - Orchard/Vineyard prunings/removals

Unit Type = Ac

Payment Rate, \$157.01, HU \$188.41

Description: Slash created from orchard/vineyard prunings is chipped or mulched and removed from the site in order to accomplish one or more purposes: reducing wildfire fuels and insect/disease substrate; improving access; and/or reducing potential risk to livestock and humans. Air emission reductions are achieved by chipping or shredding the materials in lieu of burning them. Material may be incorporated in the soil, used as a dust suppressant on unpaved roads or traffic areas.

Before Situation: Wood waste is either burned, creating an air quality issue, or left in place creating a wildfire hazard, an impediment to access, or a potential site for harboring pests. Energy conservation was not implemented.

After Situation: Woody residue/silvicultural slash treatment- light

384 - Woody residue/silvicultural slash treatment- light

Unit Type = Ac

Payment Rate, \$160.22, HU \$192.27

Description: Treating an area of forest slash to reduce hazardous fuels and the risk of insect and disease, improve organic matter and reduce erosion while improving water quality. Slash is treated with both hand (cutting, lopping, etc.) and mechanically (masticating, chipping, etc.). Done by hand and light equipment.

386 – Field Border**386 - Native, with Foregone Income**

Unit Type = Ac

Payment Rate, \$323.87, HU \$388.65

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of native species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Native grasses, legumes and forbs will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Native species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Introduced, with Foregone Income

Unit Type = Ac

Payment Rate, \$195.35, HU \$234.45

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of introduced species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Introduced grasses and legumes will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Introduced species of grasses, legumes, forbs or shrubs shall be selected that are adapted to site, will not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Pollinator, with Foregone Income

Unit Type = Ac

Payment Rate, \$354.11, HU \$424.93

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of pollinator friendly herbaceous species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Pollinator herbaceous plantings will provide species which flower throughout the growing season. This provides a source of nectar for adult pollinators and a diversity of herbaceous material for immature pollinator life stages and for nesting. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall meet the pollinator habitat requirements of the state and be adapted to site; not function as a host for diseases of a field crop and; have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Trees, with Foregone Income

Unit Type = Ac

Payment Rate, \$236.09, HU \$283.3

Description: A strip of permanent vegetation and trees established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of herbaceous and woody species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Herbaceous plantings will be established to meet Field Border specifications and in addition trees will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Tree species selected shall be adapted to site, not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Organic Seed, with Foregone Income

Unit Type = Ac

Payment Rate, \$252.52, HU \$303.02

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of organic seed for herbaceous species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices while creating a buffer between organic systems and conventional cropping systems. Organic grasses and legumes will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall be adapted to site, not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Native

Unit Type = Ac

Payment Rate, \$195.9, HU \$235.08

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of native species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Native grasses, legumes and forbs will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Native species shall be selected that do not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Introduced

Unit Type = Ac

Payment Rate, \$97.7, HU \$117.24

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of introduced species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Introduced grasses and legumes will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Introduced species of grasses, legumes, forbs or shrubs shall be selected that are adapted to site, will not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Pollinator

Unit Type = Ac

Payment Rate, \$226.13, HU \$271.36

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of pollinator friendly species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Pollinator herbaceous plantings will provide plants which flower throughout the growing season. This provides a source of nectar for adult pollinators and a diversity of herbaceous material for immature pollinator life stages and for nesting. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall meet the pollinator habitat requirements of the state and be adapted to site, not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Trees

Unit Type = Ac

Payment Rate, \$108.11, HU \$129.74

Description: A strip of permanent vegetation and trees established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of herbaceous and woody species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices within and between fields. Herbaceous plantings will be established to meet Field Border specifications and in addition trees will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Tree species selected shall be adapted to site, not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

386 - Organic Seed

Unit Type = Ac

Payment Rate, \$124.55, HU \$149.45

Description: A strip of permanent vegetation established at the edge or around the perimeter of a field. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown. Practice includes seedbed prep and planting of organic seed for herbaceous species. The area of the field border is taken out of production.

Before Situation: Fields may have erosion issues from wind or water, a field border may be needed to manage pest populations, protect soil and water quality, provide wildlife food and cover, provide pollinator habitat, or a field border may be used to increase carbon storage and improve air quality. Water quality, soil erosion and/or wildlife food and cover may all be primary resource concerns.

After Situation: This practice when applied around a field will support and connect other buffer practices while creating a buffer between organic systems and conventional cropping systems. Organic grasses and legumes will be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on NRCS local design criteria specific to the purpose for installing the practice. Species selected shall be adapted to site, not function as a host for diseases of a field crop and have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

390 – Riparian Herbaceous Cover

390 - Aquatic Wildlife

Unit Type = Ac

Payment Rate, \$2259.29, HU \$2711.14

Description: A narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of grasses, sedges, rushes, ferns, legumes, and/or forbs tolerant to the site conditions will be planted. Grasses such as prairie cordgrass (*Spartina pectinata*), sedges, rushes, and/or ferns will be planted using plugs. Additional site adapted species of grasses, legumes, and/or forbs may be added by broadcast and/or no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Seedbed preparation may require LIGHT TILLAGE (disking). WHEN POLLINATOR HABITAT IS A CONSIDERATION: Include 5-10 adapted forb species that bloom sequentially throughout the growing season where feasible.

Before Situation: The riparian zone, the specific area between terrestrial and aquatic habitats, vegetation is currently an undesirable or inadequate stand of perennial or annual vegetation as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 for those elements and natural reseeding or vegetation management is unlikely to improve the plant community within a reasonable amount of time. Existing vegetation does not provide adequate food, cover, and/or connectivity for riparian wildlife, and contributes insufficient amounts of organic matter for stream species food and cover. Riparian vegetation quality and/or quantity have been compromised by human activities and/or access of vehicles, people, and/or livestock to the extent that the riparian area and floodplain are not functioning to provide the necessary stream and riparian habitat components. Existing conditions often require suppression or eradication of current vegetation by conventional mechanical or chemical (Herbaceous Weed Control (315)) methods to ensure establishment success of the new planting. Soil quality may be reduced due to compaction and may require light tillage to prepare a proper seedbed.

After Situation: The riparian zone, the transitional zone between the terrestrial and aquatic habitats, is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

390 - Plugging and Seeding

Unit Type = Ac

Payment Rate, \$2663.3, HU \$3195.96

Description: A narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide proper function and/or adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of grasses, sedges, rushes, ferns, legumes, and/or forbs tolerant to the site conditions will be planted. Grasses such as prairie cordgrass (*Spartina pectinata*), sedges, rushes, and/or ferns will be planted using plugs. Additional site adapted species of grasses, legumes, and/or forbs may be added by broadcast and/or no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Seedbed preparation may require LIGHT TILLAGE (disking).

Before Situation: The riparian zone, the specific area between terrestrial and aquatic habitats, is currently an undesirable or inadequate stand of perennial or annual vegetation and natural reseeding or vegetation management is unlikely to improve the plant community within a reasonable amount of time to adequately address streambank and/or shoreline stability, dissipate stream energy and trap sediment, improve and/or maintain water quality, and/or provide adequate habitat corridors, food and/or cover for fish, wildlife, pollinators, and/or livestock resource concern(s). Existing conditions often require suppression or eradication of current vegetation by conventional mechanical or chemical (Herbaceous Weed Control (315)) methods to ensure establishment success of the new planting.

After Situation: The riparian zone, the transitional zone between the terrestrial and aquatic habitats, is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

390 - Warm & Cool Season Plants

Unit Type = Ac

Payment Rate, \$1341.84, HU \$1610.21

Description: A narrow strip between the aquatic and terrestrial habitats subject to intermittent flooding and saturated soils where the existing plant community has been disturbed, destroyed, or the species diversity is unable to provide proper function and/or adequate habitat. Where the establishment of a diverse riparian herbaceous plant community is desired, an adapted mix of primarily warm season grasses, legumes, and/or forbs tolerant to the site conditions will be planted by broadcast and/or no-till or range drill seeding methods as necessary to accomplish the intended purpose(s). Where chemical control of undesirable vegetation, including invasives, is required to reduce competition for the desired plant community the Herbaceous Weed Control (315) practice should be used. Seedbed preparation may require LIGHT TILLAGE (disking). WHEN POLLINATOR HABITAT IS A CONSIDERATION: Include 5-10 adapted forb species that bloom sequentially throughout the growing season where feasible.

Before Situation: The riparian zone, the specific area between terrestrial and aquatic habitats, is currently an undesirable or inadequate stand of perennial or annual vegetation and natural reseeding or vegetation management is unlikely to improve the plant community within a reasonable amount of time to adequately address streambank and/or shoreline stability, dissipate stream energy and trap sediment, improve and/or maintain water quality, and/or provide adequate habitat corridors, food and/or cover for fish, wildlife, pollinators, and/or livestock resource concern(s). Existing conditions often require suppression or eradication of current vegetation by conventional mechanical or chemical (Herbaceous Weed Control (315)) methods to ensure establishment success of the new planting.

After Situation: The riparian zone, the transitional zone between the terrestrial and aquatic habitats, is established to an adapted, diverse vegetative plant community and is under close management to insure long term survival and ecological succession. The quality and quantity of the riparian zone components are managed to support the species that depend on it for habitat as well as the functions it performs for stabilizing the streambank and/or shoreline, dissipating stream energy and trapping sediment, and improving and/or maintaining water quality. These functions include: stream temperature moderation through shading, recruitment of non-woody organic matter, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

391 – Riparian Forest Buffer

391 - Seeding

Unit Type = Ac

Payment Rate, \$145.76, HU \$174.92

Description: Establish a buffer of trees and/or shrubs to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of trees or shrubs planted through direct seeding. Planting rate will be approximately 3000 seed per acre.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

391 - Cuttings

Unit Type = Ac

Payment Rate, \$3901.44, HU \$4681.73

Description: Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of tree and/or shrub poles and live stakes (whips) planted by hand. Materials will be from a nearby, off-site location. The ratio of whips to poles will be 5:1. The cuttings will be planted in a mosaic pattern while still dormant. Tree mesh will be placed on the large cuttings.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

391 - Bare-root, hand planted

Unit Type = Ac

Payment Rate, \$1505.8, HU \$1806.96

Description: Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of hand planted bare-root shrubs, evergreen, and deciduous trees. One third of the area will be planted to each woody plant type. Tree shelters will be placed on the hardwoods and evergreens.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

391 - Bare-root, machine planted

Unit Type = Ac

Payment Rate, \$876.72, HU \$1052.06

Description: Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of machine planted bare-root shrubs, evergreen, and deciduous trees. One third of the area will be planted to each woody plant type. Tree shelters will be placed on the hardwoods and evergreens.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

391 - Small container, hand planted

Unit Type = Ac

Payment Rate, \$2134.99, HU \$2561.99

Description: Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of hand planted small containerized shrubs, evergreen, and deciduous trees. All seedlings will be planted at 15 foot by 15 foot spacing. Shrubs will be planted immediately adjacent to the waterbody. Tree shelters will be placed on all plant materials.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

391 - Small container, machine planted

Unit Type = Ac

Payment Rate, \$1400.03, HU \$1680.04

Description: Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of machine planted small containerized shrubs, evergreen, and deciduous trees. All seedlings will be planted at 15 feet by 15 feet spacing. Shrubs will be planted immediately adjacent to the water body. Tree shelters will be placed on all plant materials.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

391 - large container, hand planted

Unit Type = Ac

Payment Rate, \$3116, HU \$3739.2

Description: Establish a buffer of trees and/or shrubs into a suitably prepared site to restore riparian plant communities and associated benefits. The buffer will be located adjacent to and up-gradient from a watercourse or water body extending a minimum of 35 feet wide. The planting will consist of hand planted large containerized shrubs, evergreen, and deciduous trees. Planting for shrubs will be done at 20' x 20' spacing. Shrubs will be planted immediately adjacent to the water body. Evergreen and deciduous trees will be planted at approximately 30 feet X 30 feet spacing. Tree shelters will be placed on all planting stock.

Before Situation: Typical sites include former riparian forests and habitat used for forage, cropland, speculation property, or other nonforest condition which contains undesirable amounts or types of vegetation. Active bank erosion is depositing sediment, nutrients and organics in the riparian area. Water temperature is high due to lack of shade. Habitat is not desirable for wildlife.

After Situation: A buffer of trees and shrubs will be established along the riparian corridor which will provide stability, filtration, shade, and desirable habitat to address the above mentioned resource concerns.

393 – Filter Strip**393 - Filter Strip, Native species: Forgone Income**

Unit Type = Ac

Payment Rate, \$202.97, HU \$243.57

Description: A strip or area of native herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of native species. The area of the filter strip is taken out of production.

Before Situation: Annual small grain cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas. The area of the filter strip is taken out of production.

393 - Filter Strip, Introduced species: Forgone Income

Unit Type = Ac

Payment Rate, \$174.32, HU \$209.18

Description: A strip or area of Introduced herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of introduced species. The area of the filter strip is taken out of production.

Before Situation: Annual small grain cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of introduced species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas. The area of the filter strip is taken out of production.

393 - Filter Strip, Native Species w/ Land Shaping: Forgone Income

Unit Type = Ac

Payment Rate, \$331.25, HU \$397.49

Description: A strip or area of Native herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of native species. The area of the filter strip is taken out of production.

Before Situation: Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation (including any shaping needed to ensure even entry of water into the strip), seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas. The area of the filter strip is taken out of production.

393 - Filter Strip, Introduced Species w/ Land Shaping: Forgone Income

Unit Type = Ac

Payment Rate, \$302.59, HU \$363.11

Description: A strip or area of herbaceous vegetation, introduced species, situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep, land shaping and planting of approved species. The area of the filter strip is taken out of production.

Before Situation: Annual small grain cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of introduced species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation (including any shaping needed to ensure even entry of water into the strip), seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas. The area of the filter strip is taken out of production.

393 - Filter Strip, Native species

Unit Type = Ac

Payment Rate, \$180.06, HU \$216.07

Description: A strip or area of native herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of native species.

Before Situation: Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas.

393 - Filter Strip, Introduced species

Unit Type = Ac

Payment Rate, \$51.56, HU \$61.88

Description: A strip or area of Introduced herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of introduced species.

Before Situation: Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of introduced species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas.

393 - Native Species Filter Strip w/ Land Shaping

Unit Type = Ac

Payment Rate, \$315.81, HU \$378.97

Description: A strip or area of Native herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of native species.

Before Situation: Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation (including any shaping needed to ensure even entry of water into the strip), seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas.

393 - Introduced Species Filter Strip w/ Land Shaping

Unit Type = Ac

Payment Rate, \$187.31, HU \$224.78

Description: A strip or area of herbaceous vegetation, introduced species, situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep, land shaping and planting of approved species.

Before Situation: Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of introduced species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation (including any shaping needed to ensure even entry of water into the strip), seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas.

393 - Filter Strip, Native pollinator species

Unit Type = Ac

Payment Rate, \$210.29, HU \$252.35

Description: A strip or area of native herbaceous vegetation situated between cropland, grazing land or disturbed land and sensitive areas. Practice includes seedbed prep and planting of native species for pollinator habitat.

Before Situation: Annual cropland, grazing land, or disturbed land (including forestland) allows for runoff of suspended solids, dissolved and/or associated contaminants into environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The planned filter strip will be established and maintained per the practice plan that will meet the criteria for the planned purpose(s). The vegetation will consist of native species. The filter strip will have adequate width to filter the planned pollutants. The practice includes seedbed preparation, seeding, and operation and maintenance to maintain the vegetation and the function of the filter strip. Species selected shall be able to withstand partial burial by sediment and tolerant of herbicides used on contribution area while protecting environmentally-sensitive areas and provide habitat for pollinator species.

393 - Annual Irrigated

Unit Type = Ac

Payment Rate, \$46.34, HU \$55.61

Description: A strip or area of introduced annual vegetation situated between irrigated cropland and sensitive areas. Practice includes seedbed prep and planting of introduced species. The area of the filter strip is taken out of production.

Before Situation: Tailwater from irrigated cropland transports suspended solids and associated contaminants to down gradient environmentally-sensitive areas such as wetlands, riparian zones, critical habitat and neighboring non-ag properties. Water Quality resource concerns are associated with this practice.

After Situation: The annual filter strip is established early enough prior to the irrigation season such that vegetation is mature enough to filter sediment from the first irrigation.

394 – Firebreak**394 - Constructed - Light Equipment**

Unit Type = Ac

Payment Rate, \$78.79, HU \$94.55

Description: Installation of a bare-ground firebreak of a minimum width of 15' around a field/farm using farm equipment (2 passes). Generally water control devices such as water bars are not needed due either to the lack of steep terrain or the temporary nature of the firebreak.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Installation will be accomplished by making two passes with the use of typical farm equipment such as tractors, plows, disks, or similar implements.

After Situation: The property is adequately protected from wildfire or can be safely prescribed burned.

394 - Constructed - Medium equipment, flat-medium slopes

Unit Type = Ac

Payment Rate, \$382.64, HU \$459.16

Description: Use of medium equipment such as small dozers to blade, disk, plow, etc. 10' wide bare-soil firebreaks on slopes less than 15%. Generally, water control devices such as water bars are limited to 10 or less per 1,000 feet when properly planned and installed using the same equipment.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical.

After Situation: The property is adequately protected from wildfire or can be safely prescribed burned and the potential for excessive erosion from the firebreak is negligible.

394 - Constructed - Medium equipment, steep slopes

Unit Type = Ac

Payment Rate, \$1136.61, HU \$1363.93

Description: Use of medium equipment such as small dozers to blade, disk, plow, etc. 10' wide bare-soil firebreaks on slopes less than 15%. Generally, water control devices such as water bars are limited to 10 or less per 1,000 feet when properly planned and installed using the same equipment.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical. As slopes increase, the potential for excessive erosion increases from soil disturbances. Therefore the installation of water control devices such as water bars will be important in protecting the resource base.

After Situation: The property is adequately protected from wildfire or can be safely prescribed burned and the potential for excessive erosion from the firebreak is minimized.

394 - Vegetated permanent firebreak

Unit Type = Ac

Payment Rate, \$74.64, HU \$89.57

Description: Establishing a wide strip of permanent vegetation that will serve as a green firebreak. Includes clearing the site, preparing the seedbed, seeding (cool season grasses and/or legumes), and applying needed soil amendments. Seedbed preparation and vegetation establishment will be accomplished with farm equipment. Soil amendments will be applied according to local FOTG guidance. This does not include follow-up maintenance operations such as weed control. Mowing, etc.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn.

After Situation: The property is adequately protected from wildfire or can be safely prescribed burned. Wildlife habitat will also be enhanced and the potential for erosion from the firebreak is minimized.

394 - Constructed - Wide, bladed or disked firebreak

Unit Type = Ac

Payment Rate, \$1987.55, HU \$2385.05

Description: Installing a bare-ground firebreak with a width of 30' or more on gently to strongly sloping slopes with equipment such as a dozer with a heavy disk. Using smaller equipment, erosion control devices such as water bars will be installed at approximately 15 to 25 per 1,000 feet of firebreak length. Devices will have stable outlets.

Before Situation: Tract, field, or farm lacks adequate firebreaks to either reduce the spread of wildfires or contain a prescribed burn. Wide firebreaks are needed due to topography, high wildfire risk or to their use as down-wind breaks for prescribed burns. Conditions such as topography, the presence of brush and trees, etc. make the use of typical farm equipment impractical. As slopes increase, the potential for excessive erosion increases from soil disturbances. Therefore the installation of water control devices such as water bars will be important in protecting the resource base.

After Situation: The property is adequately protected from wildfire or can be safely prescribed burned and the potential for excessive erosion from the firebreak is minimized.

395 – Stream Habitat Improvement and Management

395 - Riparian Zone Improvement-Forested

Unit Type = Ac

Payment Rate, \$4981.57, HU \$5977.88

Description: Implementation will improve instream and riparian habitat complexity, water quality, hiding and resting cover, and/or increased food availability for desired riparian and stream species.

Before Situation: Riparian quality and quantity are at risk as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 for those elements. The site does not have adequate food, cover, and/or connectivity for riparian wildlife, and contributes insufficient amounts of organic matter and/or large woody material for stream species food and cover. The site's riparian vegetation is compromised by human activities and/or access of vehicles, people, and/or livestock is not controlled adequately to protect riparian functions and stream habitat quality. Nutrients are transported to surface waters through runoff or soil erosion or to ground water from leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be reduced due to compaction. Riparian vegetation quality and/or quantity are compromised to the extent that the riparian area and floodplain are not functioning to provide necessary stream and riparian habitat components.

After Situation: Revegetation/reforestation of the riparian zone is completed and the vegetation community is under close management to insure long-term survival and ecological succession of the plant community. The quality and quantity of the riparian zone components of the site are managed to support a diverse vegetation community suitable for the site, the species that depend on it for habitat, and the functions it performs or will eventually perform as the vegetation matures. These functions include: stream temperature moderation thru shading, recruitment of instream large wood and/or non-woody organic matter, riparian habitat for terrestrial insects and other riparian-dependent species, streambank integrity, and filtration of contaminants from surface run-off into the stream.

395 - Instream wood placement

Unit Type = Ac

Payment Rate, \$6269.86, HU \$7523.83

Description: Placement of large wood (logs, root wads, log structures) into a stream channel in order to improve aquatic habitat that currently does not meet quality criteria for stream species habitat. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components lacking for aquatic species (i.e. large wood, pools). A project design for wood placement will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large wood and root wads placed into the stream will mimic genus, age, and size of mature trees found in intact, reference riparian areas in the MLRA where the project is located. Large wood/trees with root wads intact should be placed in streams to create pool habitat according to NRCS engineering specifications and with close review & approval of a fish habitat biologist. Boulders placed to provide ballast shall only be used if the geomorphic setting and project design demand this component.

Before Situation: In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat connectivity for desired species. Riparian vegetation quality and/or quantity may also be compromised to the extent that the riparian area and floodplain are not functioning to provide necessary stream and riparian habitat components, such as large wood.

After Situation: Stream habitat within the project reach is improving as a result of placing logs, root wads, and/or wood structures in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

395 - Instream rock placement

Unit Type = Ac

Payment Rate, \$6067.26, HU \$7280.71

Description: Implementation of a stream habitat improvement and management project that places individual boulders or boulder clusters, or rock structures in or adjacent to the stream channel as habitat components. A project design for boulder placement will be based on assessment of the target stream reach characteristics and those of a suitable reference reach. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Spawning gravel placement should be placed to restore spawning area substrates potentially disturbed by rock placement.

Before Situation: In this stream reach, habitat for fish, aquatic insects and other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5 overall. The site does not have adequate food, cover, and perhaps habitat connectivity for desired species. Riparian vegetation quality and/or quantity may be also compromised to the extent that the riparian area and floodplain are not functioning to provide necessary stream and riparian habitat components, such as large wood, leaf matter, and shade.

After Situation: Stream habitat within the project reach is improving as a result of placing boulders or constructing rock structures in the channel and/or along the stream bank. Hydraulic complexity of the habitat in the reach is increased, and hiding cover, food availability and refuge habitat for stream species is improving. Streambank vegetation is increasing and contributing to stability of the stream banks.

395 - Rock and wood structures

Unit Type = Ac

Payment Rate, \$14674.88, HU \$17609.86

Description: Implementation of a stream habitat improvement and management project where practices are focused on instream habitat improvement with a combination of rock AND wood structures. This scenario involves placement of large wood and rock structures into a stream channel in order to improve aquatic habitat that currently does not meet quality criteria for stream species habitat. A stream assessment (i.e. Stream Visual Assessment Protocol) should be conducted in order to document habitat components (such as large wood, pools) are not currently present in the stream or are limited for aquatic species. A project design for placement of habitat structures (boulders, boulder clusters, wood, wood structures) will be based on assessment of (a) the target stream reach characteristics and (b) those of a suitable reference reach. These characteristics include channel geometry, channel slope, stream bottom substrate size and composition, and the geomorphic setting influencing the channel form, pattern and profile. Large rocks/boulders placed in the stream channel will mimic geologic material sizes typically present in the watershed or observed in intact, reference stream reaches in the MLRA where the project is located. Rock boulder sizes should also reflect the geomorphic setting of the stream reach. Large wood placed into the stream under this scenario should be similar in species, age, and size (diameter) as trees found in the surrounding riparian area, to the extent possible. .

Before Situation: In this stream reach, habitat for fish, aquatic insects and/or other stream species is sub-optimal as determined by the NRCS Stream Visual Assessment Protocol score of less than 5. The site does not have adequate food, cover, and perhaps habitat connectivity for desired species. Riparian vegetation quality and/or quantity may also be compromised to the extent that the riparian area and floodplain are not functioning to provide necessary stream habitat components, such as large wood and off-channel refuge habitat.

After Situation: Stream habitat within the project reach is improving as a result of placing logs, rocks, or constructing wood and rock structures in the channel and/or along the stream bank. Pool habitat in the reach is improved, and hiding cover, food availability and refuge habitat for all stream species is improving.

395 - Fish Barrier

Unit Type = Cu Yd

Payment Rate, \$3994.73, HU \$4793.68

Description: Implementation of a stream habitat improvement and management project where practices are focused on the stream channel. This action may also increase food availability for fish and other stream species located above the constructed barrier.

Before Situation: In this stream corridor, native aquatic species are at risk as determined by the state fish and wildlife agency. NRCS Stream Visual Assessment Protocol for the reach being protected by a barrier meets quality criteria and provides habitat for native species of concern, as determined by a Stream Visual Assessment Protocol score of greater than 5 .

After Situation: Native fish inhabiting areas upstream of the newly constructed concrete barrier will not be adversely affected by interactions with non-native species/competitors.

399 – Fishpond Management

399 - Invasive Weed Species - Chemical

Unit Type = Ac

Payment Rate, \$232.04, HU \$278.44

Description: Chemical application to existing fishpond to remove invasive or undesired vegetation. Chemical control will be applied by a certified pesticide applicator per state code.

Before Situation: Existing fishpond is negatively impacted by invasive vegetation. Invasive vegetation is reducing availability of resources for desired fish species.

After Situation: Chemical application has been completed to manage the invasive vegetation. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure control has been achieved through regular monitoring and will address any negative impacts to ensure an invasion does not occur again within the lifespan of the practice.

399 - Habitat Structures

Unit Type = Ac

Payment Rate, \$1138.41, HU \$1366.09

Description: Fishpond lacks a diversity of habitat to provide adequate habitat for desired fish species. Creation of habitat structures as recommended by conservation planner or other individual with appropriate credentials. Suggested improvements will determine type of structure needed, number of structures, density and location of structures. Habitat structures are submerged or emergent. Structures may include log cribs, rock piles, log and rock cribs, pipe and limber cribs, conifer cribs, PVC-tree structures, gravel spawning beds, catfish cages, concrete blocks stacked and filled with sticks or cuttings or plastic barrels filled with sand and sticks.

Before Situation: Existing fish pond lacks sufficient habitat diversity to provide optimum conditions for desired fish species.

After Situation: Habitat structures within fishpond are appropriate for desired fish species. Typical installation in 1 ac pond: 12 structures of 24 concrete blocks stacked and wired together, with sticks placed within blocks. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

399 - Aerator, surface

Unit Type = Ac

Payment Rate, \$1139.978, HU \$1367.97

Description: Aerator added to existing fishpond to obtain desired oxygen levels. 1 aerator needed per pond. Certain oxygen levels in the fishpond are needed for optimum vegetation, habitat and water quality. Oxygen levels and size of aerator needed are determined by a conservation planner, engineer or per existing supported data. Aerator planning and placement specifications can be found in "AEN-3: Aeration of ponds used in aquaculture".

Before Situation: Existing fishpond has insufficient levels of oxygen available for desired fish species in pond. Habitat and water quality degraded, as well as health of the fish population.

After Situation: Aerator sized appropriately for fishpond has been established and oxygen is at an optimum level. Participant will follow Operation and Maintenance guidance to ensure aerator maintained to continually provide appropriate oxygen levels for fishpond.

399 - Aerator, subsurface

Unit Type = Ac

Payment Rate, \$2817.13, HU \$3380.55

Description: Aerator added to existing fishpond to obtain desired oxygen levels. 1 aerator needed per pond. Certain oxygen levels in the fishpond are needed for optimum vegetation, habitat and water quality. Oxygen levels and size of aerator needed are determined by a conservation planner, engineer or per existing supported data. Aerator planning and placement specifications can be found in "AEN-3: Aeration of ponds used in aquaculture".

Before Situation: Existing fishpond has insufficient levels of oxygen available for desired fish species in pond. Habitat and water quality degraded, as well as health of the fish population.

After Situation: Aerator sized appropriately for fishpond has been established and oxygen is at an optimum level. Participant will follow Operation and Maintenance guidance to ensure aerator maintained to continually provide appropriate oxygen levels for fishpond.

399 - Planting Native Vegetation

Unit Type = Ac

Payment Rate, \$1031.52, HU \$1237.82

Description: Native, aquatic vegetation will be established by plugs and or tubers. Both emergent and submerged vegetation will be established using hand tools or other small equipment as needed. Vegetation will be established to ensure appropriate cover for desired fish species. Plants will be established at a rate, location and density as prescribed by the conservation planner or other resource.

Before Situation: Established fish pond which has had insufficient vegetation for desired fish species. Vegetation consists either primarily of non-desired plants or is not of a density to provide adequate cover for fish species.

After Situation: Vegetation in fishpond is of a density and composition that is suitable for desired fish species. Vegetation is native plants. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidelines to ensure established plants will thrive. If plant die-off occurs prior to lifespan of practice, participant is required to re-establish vegetation to NRCS Standards and Specifications.

399 - Depth Management

Unit Type = Ac

Payment Rate, \$2452.3, HU \$2942.76

Description: Management of existing fishpond by excavation or placement of material to create deep open water or littoral shelves. Fishpond currently does not provide optimum habitat for desired species. Excavated material will either be relocated within fish pond, or sited appropriately so as to not cause any negative environmental effects. Changes to depth will be based upon recommendations by conservation planner or other individual with appropriate credentials.

Before Situation: Existing fish pond lacks sufficient depth, diversity of depth or desired bottom structure to provide optimum habitat for desired fish species.

After Situation: Depth and bottom structure of fishpond are appropriate for desired fish species. Resource concerns have been addressed. Participant will follow Operation and Maintenance guidance to ensure created habitat is maintained and continues to provide the benefits to the resources.

410 – Grade Stabilization Structure

410 - Check Dams

Unit Type = Ton

Payment Rate, \$36.6, HU \$43.92

Description: A pasture/hay land field having a slope of 5 to 10 percent where ephemeral gullies have formed. The check dams are underlain with geotextile fabric. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has erosion gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed vegetation of disturbed areas use Critical Area Planting (342).

410 - Embankment, Pipe <= 6"

Unit Type = Cu Yd

Payment Rate, \$3.97, HU \$4.76

Description: An earthen embankment dam with a principal spillway pipe of 6 inches or less. Assessment shows anti-seep collars or sand diaphragms are not required. To stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Embankment, Pipe 8"-12"

Unit Type = Cu Yd

Payment Rate, \$4.62, HU \$5.54

Description: An earthen embankment dam with a principle spillway pipe between 8 and 12 inches, anti-seep collars or sand diaphragm, and excavated plunge pool basin. Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. A non-lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Embankment, Pipe >12"

Unit Type = Cu Yd

Payment Rate, \$5.77, HU \$6.92

Description: An earthen embankment dam with a principle spillway pipe greater than 12 inches. Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. A rock lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover. A

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Embankment, Soil Treatment

Unit Type = Cu Yd

Payment Rate, \$6.95, HU \$8.33

Description: An earthen embankment dam with a principal spillway pipe where on site soils are not acceptable and require extra processing or hauling from off farm, distances greater than one mile. Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. A non-lined plunge pool protects the outlet channel. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Pipe Drop, Plastic

Unit Type = In-Ft

Payment Rate, \$4.28, HU \$5.14

Description: A full flow pipe drop (i.e.: riser and barrel) grade stabilization structure designed and constructed using plastic pipe without anti-seep collars. This is an earthen dry dam structure with no permanent storage (water or sediment), however some structures may have some permanent pool / storage but do not have 35 years of sediment life. Payment rate is based upon the riser volume (length times area) in cubic feet plus the barrel volume (length times area) in cubic feet. Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Pipe Drop, Steel

Unit Type = In-Ft

Payment Rate, \$2.99, HU \$3.59

Description: A full flow pipe drop (i.e.: riser and barrel) grade stabilization structure designed and constructed with a metal anti-seep collar. This is an earthen dry dam structure with no permanent storage (water or sediment), however some structures may have some permanent pool / storage but do not have 35 years of sediment life. Payment rate is based upon the riser weir length (Diameter x 3.14) in feet times the length of the pipe barrel in (feet). Installed to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Weir Drop Structures

Unit Type = Sq Ft

Payment Rate, \$63.96, HU \$76.75

Description: A Straight, semicircular, or Box Drop structure composed of metal or reinforced concrete used to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. The unit of payment measurement is defined as weir length times drop in "feet". The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation). Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Rock Drop Structures

Unit Type = Sq Ft

Payment Rate, \$100.79, HU \$120.95

Description: A Straight Drop structure constructed of rock riprap held in place by galvanized wire, such as, gabion baskets, fence panels, or "sausage" baskets. These structures are used to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation). Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Log Drop Structures

Unit Type = Ea

Payment Rate, \$3668.03, HU \$4401.64

Description: A Straight Drop structure constructed using bioengineering principles. In this instance the drop structure is constructed of logs, rock riprap, and earthfill. These structures are used to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. The unit of payment measurement is each. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized using an engineered structure utilizing natural materials (bioengineered). The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

410 - Rock Dam

Unit Type = Sq Ft

Payment Rate, \$7.24, HU \$8.69

Description: A structure constructed of rock riprap that is hand laid in place with a series of footer rocks embedded into the gully floor then a layer of large similarly sized rocks laid on top of footers from bank to bank and at least as far up stream as wide. The function of the One rock dam is not to stop the water and then allow it to plunge over the down stream end during high water events, but to slow the water allowing it to pass through the structure effectively raising the bed of the channel to reestablish flood plain connectivity. These structures are used to restore the natural hydrology of entrenched swales and intermittent streams resulting in increased vegetative production and the natural restoration of the ecological site plant community. The unit of payment measurement is defined as length from furthest upstream part of structure to furthest down stream part of structure times width being the widest extent of structure when measured from channel bank to channel bank "square feet". Disturbed areas are protected with permanent vegetative cover.

Before Situation: The operator presently has entrenched swales or intermittent streams in rangeland or other land use. The entrenched systems are lowering the water table, reducing vegetative productivity, changing vegetation type, degrading forage and degrading wildlife habitat (critical sage grouse brood rearing habitat). Erosion from the entrenched systems is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: The function of the one rock dam is not to stop the water and then allow it to plunge over the down stream end during high water events, but to slow the water allowing it to pass through the structure effectively raising the bed of the channel to reestablish flood plain connectivity. These structures are used to restore the natural hydrology of entrenched swales and intermittent streams resulting in increased vegetative production and the natural restoration of the ecological site plant community.

410 - Rock Drop Structures - remote locations

Unit Type = Sq Ft

Payment Rate, \$120.11, HU \$144.13

Description: A Straight Drop structure constructed of rock riprap held in place by galvanized wire, such as, gabion baskets, fence panels, or "sausage" baskets. These structures are used to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advancing of gullies, and to enhance environmental quality and reduce pollution hazards. Applied in areas where the concentration and flow velocity of water require structures to stabilize the grade in channels or to control gully erosion. The unit of payment measurement is defined as weir length times drop in "feet". The drop (feet) is defined as the structure inlet crest elevation minus the control outlet elevation (i.e.: outlet apron elevation). Disturbed areas are protected with permanent vegetative cover. This scenario is strictly for use in remote locations that are at least 50 miles or more from the source of equipment or materials.

Before Situation: The operator presently has gullies forming and/or worsening on the farmland and impacting the useable area and the downstream water quality. Erosion from the gullies is allowing soil and possibly nutrients to be transported to downstream receiving waters degrading water quality and causing soil loss.

After Situation: Area is stabilized. The advancement and/or formation of gullies is stopped, soil from gullies no longer leaves the farm, useable farm area is increased, sedimentation and other pollution hazards are decreased, and water quality downstream is protected. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

422 – Hedgerow Planting

422 - Pollinator Habitat

Unit Type = Ft

Payment Rate, \$2.25, HU \$2.7

Description: Provide physical habitat by providing areas that are not disturbed by annual tillage and provides pollen and nectar throughout the growing season by establishing a diverse mixture of flowering plants. A mixture of 5 or more species is planted to improve diversity so that pollen and nectar are available as long as possible. Installation is in or at the edge of cropland or pasture. Installation involves tillage to prepare the site for planting. Flowering trees and shrubs adapted for local climatic and edaphic conditions are planted at eight foot intervals (this will vary with species selection and density goals). A native grass adapted to the local climatic and edaphic conditions will be drilled into the site. A locally adapted mixture of at 3 pollen and nectar producing plants will be drilled into the site. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials.

Before Situation: Pollen and nectar sources are lacking or are only available for part of the growing season. Large cropland tracks lack undisturbed areas for ground nesting bees

After Situation: Flowering plants supply pollen and nectar throughout the growing season. Undisturbed areas provide nesting sites for bees and other native pollinators.

422 - Wildlife, Warm Season Grass

Unit Type = Ft

Payment Rate, \$2.08, HU \$2.49

Description: Installed in or at the edge of cropland or pasture. Specifically, the establishment of dense vegetation in a linear design can be used to provide for several habitat elements depending on the needs identified in the habitat assessment. This scenario can provide: habitat connectivity, food, and cover for wildlife depending on design and plant species selection. The 422 standard for wildlife criteria calls for a minimum of two species of native plants. Installation involves tillage to prepare the site for planting. 2 Trees and/or shrubs adapted for local climatic and edaphic conditions are plant at eight foot intervals (this will vary with species selection and density goals). A mix of 2 native warm season grasses adapted to the local climatic and edaphic conditions will be drilled into the site. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials.

Before Situation: Habitat patches lack connectivity. Cover is inadequate to allow wildlife to exploit cropland food resources. Berries and mast are limited.

After Situation: Inadequate habitat for fish and wildlife is addressed for needs identified in the resource assessment. Habitat patches are connected by dense hedgerow vegetation. Food resources in crop fields are made available by their proximity to hedgerow cover. Planting may include fruit and mast bearing species, improving food supply, depending on needs being addressed.

422 - Wildlife machine plant

Unit Type = Ft

Payment Rate, \$0.34, HU \$0.41

Description: This scenario is for machine planting of woody species. Installed in or at the edge of cropland or pasture. Specifically, the establishment of dense vegetation in a linear design can be used to provide for several habitat elements depending on the needs identified in the habitat assessment. This scenario can provide: habitat connectivity, food, and cover for wildlife depending on design and plant species selection. The 422 standard for wildlife criteria calls for a minimum of two species of native plants. Installation involves tillage to prepare the site for planting. 2 Trees and/or shrubs adapted for local climatic and edaphic conditions are plant at eight foot intervals (this will vary with species selection and density goals). A mix of 2 native grasses adapted to the local climatic and edaphic conditions will be drilled into the site. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials.

Before Situation: Habitat patches lack connectivity. Cover is inadequate to allow wildlife to exploit cropland food resources. Berries and mast are limited.

After Situation: Inadequate habitat for fish and wildlife is addressed for needs identified in the resource assessment. Habitat patches are connected by dense hedgerow vegetation. Food resources in crop fields are made available by their proximity to hedgerow cover. Planting may include fruit and mast bearing species, improving food supply, depending on needs being addressed.

422 - Wildlife Cool Season

Unit Type = Ft

Payment Rate, \$2.07, HU \$2.48

Description: Installed in or at the edge of cropland or pasture. Specifically, the establishment of dense vegetation in a linear design can be used to provide for several habitat elements depending on the needs identified in the habitat assessment. This scenario can provide: habitat connectivity, food, and cover for wildlife depending on design and plant species selection. The 422 standard for wildlife criteria calls for a minimum of two species of native plants. Installation involves tillage to prepare the site for planting. 2 Trees and/or shrubs adapted for local climatic and edaphic conditions are plant at eight foot intervals (this will vary with species selection and density goals). A native cool season grass adapted to the local climatic and edaphic conditions will be drilled into the site. The main difference is that conservation practice 380 is exclusively woody plants where practice 422 provides for the use of herbaceous materials.

Before Situation: Habitat patches lack connectivity. Cover is inadequate to allow wildlife to exploit cropland food resources. Berries and mast are limited.

After Situation: Inadequate habitat for fish and wildlife is addressed for needs identified in the resource assessment. Habitat patches are connected by dense hedgerow vegetation. Food resources in crop fields are made available by their proximity to hedgerow cover. Planting may include fruit and mast bearing species, improving food supply, depending on needs being addressed.

428 – Irrigation Ditch Lining**428 - Concrete Lining, 1 ft bottom**

Unit Type = Sq Yd

Payment Rate, \$9.83, HU \$11.79

Description: Construct concrete lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Includes filling the old ditch with on-site fill material, compacting, and constructing an 8 ft pad with on-site fill material. This scenario does not include any check or outlets gates. A trapezoidal trencher forms the ditch (typical cross-section: 1 ft bottom, 2.5 feet depth including freeboard, and 1:1 side slope) and lining with concrete slip forms (total width = 8.07 ft).

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

428 - Concrete lined ditch-thick, 1.5 ft bottom

Unit Type = Sq Yd

Payment Rate, \$11.38, HU \$13.65

Description: Construct concrete lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Includes filling the old ditch with on-site fill material, compacting, and constructing an 8 ft pad with on-site fill material. This scenario does not include any check or outlets gates. A trapezoidal trencher forms the ditch (typical cross-section: 1.5 ft bottom, 2.5 ft depth including freeboard, and 1:1 side slope) and lining with concrete slip forms (total width = 8.57 ft). 1 foot bottom ditch is needed deliver expected water flows on relatively flat grades.

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

428 - Concrete Lining, 2 ft bottom

Unit Type = Sq Yd

Payment Rate, \$10.16, HU \$12.2

Description: Construct concrete lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Includes filling the old ditch with on-site fill material, compacting, and constructing an 8 ft pad with on-site fill material. This scenario does not include any check or outlets gates. A trapezoidal trencher forms the ditch (typical cross-section: 2 ft bottom, 2.5 ft depth including freeboard, and 1:1 side slope) and lining with concrete slip forms (total width = 9.07 ft). Two foot bottom ditch is needed for higher water flows (10+ cfs) on relatively flat grades.

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

428 - Concrete Lining, > 2 ft bottom

Unit Type = Sq Yd

Payment Rate, \$10.35, HU \$12.42

Description: Construct concrete lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Includes filling the old ditch with on-site fill material, compacting, and constructing a 12 ft pad with on-site fill material. This scenario does not include any check or outlets gates. A trapezoidal trencher forms the ditch (typical cross-section: 3 ft bottom, 2.5 ft depth including freeboard, and 1:1 side slope) and lining with concrete slip forms (total width = 10.07 ft). Three foot bottom ditch is needed for higher water flows (20+ cfs) on relatively flat grades.

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

428 - Notched Ditch, 1.5 ft bottom

Unit Type = Sq Yd

Payment Rate, \$17.01, HU \$20.41

Description: Construct concrete lining in an existing ditch alignment with hand formed notches, located at the top of the ditch on field side, to convey water from the source of supply to a field or fields in a farm distribution system. Notches are typically spaced to match field crop row spacing and are wedge shaped with typical dimensions of 2" bottom width, 6" top width and 6" deep. Includes filling the old ditch with on-site fill material, compacting, and constructing an 8 ft pad with on-site fill material. This scenario does not include any check or outlets gates. A trapezoidal trencher forms the ditch (typical cross-section: 1.5 ft bottom, 2.5 ft depth including freeboard, and 1:1 side slope) and lining with concrete slip forms (total width = 8.57 ft). 1.5 foot bottom ditch is needed deliver expected water flows on relatively flat grades.

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

428 - Flexible Lining

Unit Type = Sq Yd

Payment Rate, \$6.62, HU \$7.94

Description: Construct uncovered flexible membrane (30mil HDPE) lining in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Includes subgrade preparation via clearing & grubbing, shaping old channel with no bedding or geotextile cushion to place, and placing membrane with 8 inch tuck/anchor on each side (total liner width = 8 ft).

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

428 - Transitions

Unit Type = Sq Ft

Payment Rate, \$2.63, HU \$3.16

Description: Construct short transition of concrete lining in an existing ditch alignment to convey water from one section of a ditch to another. Includes hand placing concrete in the transition section where equipment cannot reach.

Before Situation: need to connect one end of a ditch with a specific cross section to another ditch with the same or different cross section that may include placing a transition in a curve which requires hand placement.

After Situation: Transitions prevents seepage and erosion at ditch joints, reduces energy use and improves water quality and irrigation efficiency.

428 - Semi Rigid HDPE Prefab Liner

Unit Type = Sq Yd

Payment Rate, \$32.89, HU \$39.47

Description: Construct uncovered semi-rigid HDPE liner in an existing ditch alignment to convey water from the source of supply to a field or fields in a farm distribution system. Includes subgrade preparation via clearing & grubbing, shaping old channel to place, and placing edge anchors as required for installation. Scenario assumes typical trapezoidal ditch (1 ft bottom, 2 ft depth including freeboard, and 1:1 side slope). Total width is 8 ft.

Before Situation: Leaky and erosive earthen irrigation ditch.

After Situation: Impervious lining prevents seepage, reduces energy use and improves water quality and irrigation efficiency.

430 – Irrigation Pipeline**430 - PVC (Iron Pipe Size) ≤ 8 inch**

Unit Type = Lb

Payment Rate, \$1.92, HU \$2.3

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch. The unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Iron Pipe Size) ≤ 8 inch with boring

Unit Type = Lb

Payment Rate, \$2.46, HU \$2.95

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch. Includes boring. The unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Iron Pipe Size) ≤ 8 inch, alfalfa valve

Unit Type = Lb

Payment Rate, \$2.41, HU \$2.89

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch. The unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. The cost of the alfalfa valve is included in the cost, this valve is not included in appurtenances. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Iron Pipe Size) ≥ 10 inch

Unit Type = Lb

Payment Rate, \$1.62, HU \$1.94

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch. The unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Iron Pipe Size) \geq 10 inch with boring.

Unit Type = Lb

Payment Rate, \$1.76, HU \$2.12

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch. Includes boring. The unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Iron Pipe Size) \geq 10 inch, alfalfa valve

Unit Type = Lb

Payment Rate, \$1.81, HU \$2.17

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 24-inch. The unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. The cost of the alfalfa valve is included in the cost, this valve is not included in appurtenances. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Plastic Irrigation Pipe) $<$ 8 inch

Unit Type = Lb

Payment Rate, \$3.01, HU \$3.61

Description: Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch. The unit is weight of pipe in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Scenario is intended for pipes with diameters less than 8 inches.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Plastic Irrigation Pipe) \leq 8 inch with boring

Unit Type = Lb

Payment Rate, \$4.7, HU \$5.64

Description: Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch. Includes boring. The unit is weight of pipe in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included (additional 10% of pipe material quantity). Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Plastic Irrigation Pipe) ≤ 8 inch, alfalfa valve

Unit Type = Lb

Payment Rate, \$4.56, HU \$5.47

Description: Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch. The unit is weight of pipe in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Cost of the alfalfa valve is included in the cost, this valve is not included in appurtenances. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Plastic Irrigation Pipe) > 15 inch

Unit Type = Lb

Payment Rate, \$1.55, HU \$1.86

Description: Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch. The unit is weight of pipe in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Scenario is intended for pipes with diameters greater than 15 inches.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Plastic Irrigation Pipe) ≥ 10 inch with boring

Unit Type = Lb

Payment Rate, \$2.57, HU \$3.09

Description: Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch. Includes boring. The unit is weight of pipe in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - PVC (Plastic Irrigation Pipe) ≥ 10 inch, alfalfa valve

Unit Type = Lb

Payment Rate, \$2.69, HU \$3.22

Description: Below ground installation of PVC (Plastic Irrigation Pipe) pipeline. PVC (PIP) is manufactured in sizes (nominal diameter) from 4-inch to 27-inch; typical practice sizes range from 4-inch to 24-inch. The unit is weight of pipe in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. The cost of the alfalfa valve is included in the cost, this valve is not included in appurtenances. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - HDPE (Iron Pipe Size & Tubing)

Unit Type = Lb

Payment Rate, \$2.48, HU \$2.97

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 2-inch to 24-inch. The unit is weight of pipe material in pounds. Appurtenances include: fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - Surface HDPE (Iron Pipe Size & Tubing)

Unit Type = Lb

Payment Rate, \$2.61, HU \$3.13

Description: On-ground surface installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 2-inch to 24-inch. The unit is weight of pipe material in pounds. Appurtenances include: fittings, air vents, pressure relief valves, anchors, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - HDPE (Corrugated Plastic Pipe)

Unit Type = Lb

Payment Rate, \$2.12, HU \$2.54

Description: Below ground installation of HDPE (Corrugated Plastic Pipe) pipeline. HDPE (CPP) Twin-Wall is manufactured in sizes (nominal diameter) from 4-inch to 60-inch; typical practice sizes range from 12-inch to 24-inch. The unit is in weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - Steel (Iron Pipe Size)

Unit Type = Lb

Payment Rate, \$1.48, HU \$1.77

Description: Below ground installation of Steel (Iron Pipe Size) pipeline. Steel (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 2-inch to 18-inch. The unit is the weight of pipe material in pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After Situation: Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.

430 - 8 inch diameter 80 psi PVC PIP, per foot

Unit Type = In ft

Payment Rate, \$4.73, HU \$5.68

Description: Below ground installation of PVC plastic irrigation pipeline. Installed below ground with 30 inches minimum cover. Appurtenances include couplings, fittings, air vents, pressure relief valves, thrust blocks dog-legs (risers) and inline valves. Appurtenances do not include flow meters or backflow prevention devices. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement existing inefficient irrigation conveyance system.

After Situation: Irrigation pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing conveyance losses, reducing soil erosion, and/or reducing energy use.

430 - 10 inch diameter 80 psi PVC PIP, per foot

Unit Type = In ft

Payment Rate, \$7.72, HU \$9.26

Description: Below ground installation of PVC plastic irrigation pipeline. Installed below ground with 30 inches minimum cover. Appurtenances include couplings, fittings, air vents, pressure relief valves, thrust blocks dog-legs (risers) and inline valves. Appurtenances do not include flow meters or backflow prevention devices. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement existing inefficient irrigation conveyance system.

After Situation: Irrigation pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing conveyance losses, reducing soil erosion, and/or reducing energy use.

430 - 12 inch diameter 80 psi PVC PIP, per foot

Unit Type = In ft

Payment Rate, \$9.89, HU \$11.87

Description: Below ground installation of PVC plastic irrigation pipeline. Installed below ground with 30 inches minimum cover. Appurtenances include couplings, fittings, air vents, pressure relief valves, thrust blocks dog-legs (risers) and inline valves. Appurtenances do not include flow meters or backflow prevention devices. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement existing inefficient irrigation conveyance system.

After Situation: Irrigation pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing conveyance losses, reducing soil erosion, and/or reducing energy use.

430 - 15 inch diameter 80 psi PVC PIP, per foot

Unit Type = In ft

Payment Rate, \$14, HU \$16.79

Description: Below ground installation of PVC plastic irrigation pipeline. Installed below ground with 30 inches minimum cover. Appurtenances include couplings, fittings, air vents, pressure relief valves, thrust blocks dog-legs (risers) and inline valves. Appurtenances do not include flow meters or backflow prevention devices. Typical installation applies to soils with no special bedding requirements.

Before Situation: Pipeline needed to replace or supplement existing inefficient irrigation conveyance system.

After Situation: Irrigation pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing conveyance losses, reducing soil erosion, and/or reducing energy use.

436 – Irrigation Reservoir**436 - Embankment Dam with On-Site Borrow**

Unit Type = Cu Yd

Payment Rate, \$3.79, HU \$4.55

Description: The reservoir, created by an embankment built across a natural depression, with an 18" diameter principal spillway outlet through the embankment, is controlled by a canal-style gate. Outlet can also serve as overflow protection with a 12" diameter standpipe and tee to the 18" pipe. Any watershed runoff will be diverted around reservoir. It will be built with on-site material.

Before Situation: Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

Divert water around - no spillway

After Situation: This is an embankment, installed across a natural off-stream intermittent watercourse, used to store water for subsequent irrigation. It will be used to accumulate and store water for timely and efficient application of water through an irrigation system. The water source could be a well, irrigation district pipeline, and/or a pump from a stream. It is designed to deliver water by gravity to an open ditch or non-pressurized pipeline, generally in excess of 5 cfs. All earthen materials will be from on-site sources.

436 - Embankment Dam with Off-Site Borrow

Unit Type = Cu Yd

Payment Rate, \$6.2, HU \$7.43

Description: The reservoir, created by an embankment built across a natural depression, with an 18" diameter principal spillway through the embankment, is controlled by a canal-style gate. It will be built with material from off the site. The embankment side slopes will be 2.5 H to 1 V up and down stream.

Before Situation: Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation: This is an embankment, installed across a natural off-stream intermittent watercourse, used to store water for subsequent irrigation. It will be used to accumulate and store water for timely and efficient application of water through an irrigation system. The water source could be, a well, irrigation district pipeline, and/or a pump from a stream. It is designed to deliver water by gravity to an open ditch or non-pressurized pipeline, generally in excess of 5 cfs. All earthen materials will be from off-site sources.

436 - Embankment Reservoir ≤ 30 Acre-Feet

Unit Type = Cu Yd

Payment Rate, \$3.12, HU \$3.74

Description: This is a small rectangular embankment reservoir with a 10" diameter principal spillway through the embankment controlled by a canal-type gate. It is designed to accumulate, store, and deliver water by gravity to an open ditch or non-pressurized pipeline, in excess of 5 cfs. The side slopes will no steeper than 2.5 H to 1 V inside and out. It will be built with on-site material.

Before Situation: Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation: The square reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream, an irrigation well, or an irrigation district canal.

436 - Embankment Reservoir > 30 Acre-Feet

Unit Type = Cu Yd

Payment Rate, \$3.11, HU \$3.74

Description: This is a very large embankment reservoir with an 18" diameter drain pipe through the embankment controlled by a canal-type gate. It is designed to accumulate, store, and deliver water by gravity to an open ditch or non-pressurized pipeline, in excess of 5 cfs. Average fill of 10 feet and the side slopes will be no steeper than 3 H to 1 V inside and out. It will be built with on-site material. It will have a maximum water depth of 8 feet with 2 feet of freeboard and no auxiliary spillway. Critical Area Planting and Mulching is required.

Before Situation: Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation: The rectangular reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream or an irrigation district canal.

436 - Excavated Tailwater Pit

Unit Type = Cu Yd

Payment Rate, \$1.67, HU \$2

Description: This is an excavated pit with a control structure. It is designed to accumulate, store, deliver or regulate water for a surface irrigation system. The side slopes will be no steeper than 1.5 H to 1 V inside and out. It will be built with on-site material. It will have a maximum water depth of 10 feet with 1 foot of freeboard.

Before Situation: Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation: An excavated regulating reservoir will be built on a relatively flat site and be used to accumulate and store water for timely application through an irrigation system. The water source could be a stream or an irrigation district canal.

436 - Steel Tank

Unit Type = Gal

Payment Rate, \$1.07, HU \$1.28

Description: An above ground, enclosed fabricated Steel or bottomless Corrugated Metal (with plastic liner and cover) tank with fittings, is installed on 6" of well compacted drain rock support pad with sand padding (CM tank), to store water from a reliable source for irrigation of an area less than 5 acres. This does not include pumps, pipe, or fittings for the pipeline.

Before Situation: Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation: An above ground, enclosed fabricated steel or bottomless corrugated metal tank (with plastic liner and cover), capable of withstanding the elements, is used to accumulate and store water between irrigation cycles for a small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a very large roof area, a water ram , or a pump drawing water from a stream.

436 - Plastic Tank

Unit Type = Gal

Payment Rate, \$1.05, HU \$1.26

Description: An above-ground, High Density Polyethylene plastic enclosed tank, is installed on 6" of well-compacted drain rock or a 4" thick reinforced concrete support pad, to store water from a reliable source for irrigation of an area less than one acre. This does not include pumps, pipe, or connecting fittings.

Before Situation: Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation: An above-ground plastic tank, constructed to withstand the elements, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a large roof area, a water ram , or a pump drawing water from a stream.

436 - Fiberglass Tank

Unit Type = Gal

Payment Rate, \$0.82, HU \$0.98

Description: An above ground, enclosed, fiberglass tank, is installed on 6" of well compacted drain rock support pad. The tank is used to store water from a reliable source for irrigation of areas less than 3 acres. This does not include pumps, pipe, fittings for the pipeline, or catchment area.

Before Situation: Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation: A large fiberglass enclosed tank, capable of withstanding the elements, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application and better efficiency. Sources of water could be a well, a domestic water system, a very large roof area, a water ram , or a pump drawing water from a stream.

436 - Reservoir < 15 ac-ft

Unit Type = Cu Yd

Payment Rate, \$2.22, HU \$2.66

Description: Relatively smaller irrigation reservoir constructed such that the capacity is obtained from both excavation and embankment material. Single pipe conduit for outflow consisting of an 18" diameter pipe to control up to 4 cfs. Excavated material is used to construct an embankment surrounding the excavation in which both retain irrigation water. Embankment is compacted with a minimum of two passes of construction equipment and the final 6-8 inches is roller compacted to reduce seepage losses. No auxiliary spillway.

Before Situation: Irrigated cropland/hay land and some pasture with river, stream or ditch water source. Current system relies on an intermittent or low-flow rate water source. This results in untimely and/or inefficient water application.

After Situation: A dependable water source or more efficient delivery for an improved irrigation system.

441 – Irrigation System, Microirrigation**441 - SDI (Subsurface Drip Irrigation) (\$150,000 cap per contract)**

Unit Type = Ac

Payment Rate, \$1332.41, HU \$1598.89

Description: A subsurface drip irrigation system (SDI) with a lateral spacing between 37-59 inches. This buried drip irrigation system utilizes a thinwall dripperline or tape with inline emitters at a uniform spacing for the system laterals. The dripperline or tape is normally installed by being plowed in approx. 10-14 inches deep with a chisel shank type plow equipped with tape reels. This type of drip irrigation system utilizes a buried supply manifold with automated zone control valves and a buried flush manifold with manual flush valves. This permanent micro-irrigation system includes an automated filter station, flow meter, backflow prevention device, automated control box or timer, the thinwall dripperline or tape for laterals, both a supply and a flushing manifold and numerous types of water control valves. This is an all-inclusive system starting with the filter station including all required system components out to the flush valves. Does not include Pump, Power source, Water source (well or reservoir), Flow meter. The water supply line from the water source to the filter station is an irrigation pipeline (430) and is not included as part of this system

Before Situation: Typical before irrigation situation would normally be an existing inefficient surface or sprinkler irrigation system on a cropland or hay land field. The existing irrigation system would experience poor, non-uniform irrigation applications and significant water losses affecting both water quantity and water quality

After Situation: A typical practice would be the installation of a subsurface drip irrigation system (SDI) on a cropland or hay land field. The system lateral (thinwall dripperline or tape). This highly efficient SDI (buried) irrigation system provides irrigation water directly to the plant root zone eliminating application losses resulting in a very high water application efficiency and properly designed these SDI systems are capable of very uniform water applications.

441 - Surface PE with emitters (\$75,000 cap per contract)

Unit Type = Ac

Payment Rate, \$645.8, HU \$774.95

Description: A micro-irrigation system, utilizing surface PE tubing (can be placed on trellis or above ground) with emitters to provide irrigation for an orchard, vineyard, or other specialty crop grown in a grid pattern. This is a permanent system. This system utilizes emitters at each tree or plant as the water application device. This system includes a filter system, PE tubing laterals, PVC manifolds, and sub mains, valves, fittings, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr at each individual lateral discharge point. Does not include Pump, Power source, Water source (well or reservoir), Flow meter.

Before Situation: A vineyard has an inefficient surface flood irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation: A surface placed microirrigation system is utilized to provide highly efficient irrigation to a vineyard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

441 - Microjet (\$75,000 cap per contract)

Unit Type = Ac

Payment Rate, \$2131.19, HU \$2557.42

Description: A micro-irrigation system, utilizing micro-jets to provide irrigation and/or frost protection for an orchard or other specialty crops grown in a grid pattern. The system is installed with all fittings, control valves, pressure reducing/regulating valves, air/vacuum release, sand media/screen/disc filters, pressure gauges, sub mains (subsurface), lateral lines (subsurface), and micro-jet sprayers to deliver water to the trees. This practice applies to systems designed to discharge < 60 gal/hr at each individual lateral discharge point. Does not include Pump, Power source, Water source (well or reservoir), Flow meter..

Before Situation: An orchard has an inefficient irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation: A micro-spray microirrigation system is utilized to provide highly efficient irrigation to an orchard. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

441 - Small Farm (\$25,000 cap per contract)

Unit Type = Ac

Payment Rate, \$835.21, HU \$1002.25

Description: A micro-irrigation system, utilizing surface PE tubing (can be placed on trellis or above ground) with emitters to provide irrigation on small acreages that have an orchard, vineyard, or a specialty row crop. The system is a permanent system, installed on 5 acres or less. This system scenario utilizes above ground micro or drip irrigation tubing with emitters built in. PVC pipe (mainline, sub mains, etc.) are buried. This system includes a filter system, PE tubing laterals, PVC manifolds, and sub mains, valves, fittings, emitters, flow meter, backflow prevention device, etc. This practice applies to systems designed to discharge < 60 gal/hr at each individual lateral discharge point. Does not include Pump, Power source, Water source (well or reservoir) Flow meter.

Before Situation: A small farm (5 acres or less) has an inefficient surface flood irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation: A surface placed microirrigation system is utilized to provide highly efficient irrigation to a small farm. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.

441 - Windbreak Surface PE (\$10,000 cap per contract)

Unit Type = Ac

Payment Rate, \$2611.03, HU \$3133.23

Description: A micro-irrigation system, utilizing surface PE tubing. This is a permanent system, installed on a 3 row 1000' windbreak on the ground surface (total of 3000' lf). The windbreak has a tree or plant spacing of 8 feet, and a 15 ft lateral spacing. This system utilizes emitters at each tree or plant as the water application device. This system includes a filter system, PE tubing, PVC manifolds, emitters, etc. This practice applies to systems designed to discharge < 60 gal/hr at each individual lateral discharge point. Does not include Pump, Power source, Water source (well or reservoir), Flow meter.

Before Situation: A tree row has an insufficient available water source causing plant health (establishment and persistence) concerns.

After Situation: A surface placed microirrigation system is utilized to provide highly efficient irrigation to a tree row to address plant health concerns.

442 – Sprinkler System

442 - Center Pivot System (\$150,000 cap per contract)

Unit Type = Ln Ft

Payment Rate, \$56.53, HU \$67.83

Description: Installation of a low pressure center pivot system.

Before Situation: A field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients salts, and chemicals to the ground water. Runoff from the field contains excess nutrients and degrades the receiving waters. Irrigated induced erosion is excessive.

After Situation: The existing surface irrigation system is converted to a low pressure center pivot. Corners are converted to non-irrigated cropland.

The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

This center pivot scenario includes all hardware from the pivot point, including the concrete pad the pivot is placed on.

442 - Center Pivot, poly lined (\$150,000 cap per contract)

Unit Type = Ln Ft

Payment Rate, \$63.77, HU \$76.53

Description: Installation of a low pressure center pivot system. Irrigation water quality is such that normal galvanized steel will deteriorate before meeting the life expectancy of this practice.

Before Situation: A field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients salts, and chemicals to the ground water. Runoff from the field contains excess nutrients and degrades the receiving waters. Irrigated induced erosion is excessive.

After Situation: The existing surface irrigation system is converted to a low pressure center pivot. Corners are converted to non-irrigated cropland.

The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

This center pivot scenario includes all hardware from the pivot point, including the concrete pad the pivot is placed on.

442 - Linear Move System (\$150,000 cap per contract)

Unit Type = Ln Ft

Payment Rate, \$71.75, HU \$86.09

Description: Installation of a linear or lateral move sprinkler system with sprinklers on drops with or without drag hoses to improve irrigation efficiency and reduce soil erosion.

Before Situation: A field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients salts, and chemicals to the ground water. Runoff from the field contains excess nutrients and degrades the receiving waters. Irrigated induced erosion is excessive.

After Situation: The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

442 - Linear Move, poly lined (\$150,000 cap per contract)

Unit Type = Ln Ft

Payment Rate, \$78.99, HU \$94.79

Description: Installation of a linear or lateral move sprinkler system with sprinklers on drops with or without drag hoses to improve irrigation efficiency and reduce soil erosion. Irrigation water quality is such that normal galvanized steel will deteriorate before meeting the life expectancy of this practice.

Before Situation: A field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients salts, and chemicals to the ground water. Runoff from the field contains excess nutrients and degrades the receiving waters. Irrigated induced erosion is excessive.

After Situation: The new irrigation system has a coefficient of uniformity above 85%. Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

442 - Wheel Line System

Unit Type = Ln Ft

Payment Rate, \$12.38, HU \$14.86

Description: A wheel line (also called side roll, wheel move, or lateral-roll) with wheels and supply pipeline. A wheel line consists of the mover, lateral pipe, wheels, sprinklers, couplers, and connectors to the mainline supply.

Before Situation: Cropland that is flood irrigated and has poor irrigation efficiency and distribution uniformity. The slope and irregular shape of the field limit the potential for improved management to improve the irrigation efficiency or the distribution uniformity.

Irrigation water moves both within the field and off it, resulting in wet areas, runoff and deep percolation. Parts of the field are over-irrigated, and other sections are under-irrigated. Runoff from the field flows into streams, water courses, and other water bodies. Excess applied irrigation water infiltrates into ground water causing degradation to the receiving waters.

After Situation: The wheel line improves distribution uniformity. Irrigation application efficiency improves to 75%. Water application rates meet the consumptive use of the crop and matches soil intake rates in order to prevent irrigation induced erosion, runoff, and deep percolation.

442 - Solid Set System (\$150,000 cap per contract)

Unit Type = Ac

Payment Rate, \$3478.76, HU \$4174.52

Description: A solid set irrigation system.

Before Situation: The typical installation will be on cropland with some existing inefficient irrigation. The farm is typically producing specialty crops, such as fresh vegetables.

After Situation: The installed solid set system has 3-4 inch pipe sizes and sprinklers set 30 – 50 ft apart. Improved distribution uniformity and irrigation efficiency will result.

442 - Traveling Gun System, < 2 inch Hose

Unit Type = Ea

Payment Rate, \$6234.11, HU \$7480.94

Description: A portable small gun system used to apply irrigation water on small fields.

A small traveling gun irrigation system is installed to apply water uniformly and at an acceptable application rate operated under pressure to effectively irrigate. The irrigation system is installed with all necessary appurtenances.

Before Situation: An existing traveling gun on a 5 acre field is inefficient and is not applying water uniformly or not at an acceptable application rate. Excess applied water causes irrigation induced erosion, runoff and deep percolation. The runoff and deep percolation degrade the receiving waters.

After Situation: A small traveling gun irrigation system is installed to irrigate 5 acres based on the determined spacing needs.

Irrigation is applied efficiently and uniformly to maintain adequate soil water for plant growth without causing excessive water loss, erosion, or water quality degradation

The irrigation system is installed with all necessary appurtenances.

442 - Traveling Gun System, 2 to 3 inch Hose

Unit Type = Ea

Payment Rate, \$16958.32, HU \$20349.98

Description: A portable big gun system used to apply waste water from animal feeding operations.

This traveling big gun unit includes a sprinkler, towable cart, 1000' or more of PE hard hose, a self-propelled reel that moves the sprinkler toward the reel during operation. The reel attaches to a mainline with appropriately designed towpath width.

Before Situation: A confined, animal operation has a waste management system that exceeds its capacity, or an operation that does not have a waste management system in place. The inefficiency of the existing system or the lack of a waste management system has an impact on the soil and water quality. Animal waste runs off and degrades the receiving waters.

After Situation: The big gun applies animal manure in an appropriate quantity and location that eliminates both runoff of the manure and deep percolation of excess nutrients, salts, and pathogens.

The system includes a large irrigation gun with 1" to 1½" orifice mounted onto a movable cart. 1000' or more flexible 3" PE pipe is attached to the cart on one end and a large reel on the other end. The reel serves as storage area for the pipe as the cart moves back to the reel. The reel is turned by a small engine which gradually pulls the flexible pipe and cart back to the reel/base.

442 - Traveling Gun System, > 3 inch Hose

Unit Type = Ea

Payment Rate, \$33553.22, HU \$40263.86

Description: A portable big gun system used to apply waste water from animal feeding operations.

This traveling big gun unit includes a sprinkler, towable cart, 1200' or more of PE hard hose, a self-propelled reel that moves the sprinkler toward the reel during operation. The reel attaches to a mainline with appropriately designed towpath width.

Before Situation: A confined, animal operation has a waste management system that exceeds its capacity, or an operation that does not have a waste management system in place. The inefficiency of the existing system or the lack of a waste management system has an impact on the soil and water quality. Animal waste runs off and degrades the receiving waters.

After Situation: The big gun applies animal manure in an appropriate quantity and location that eliminates both runoff of the manure and deep percolation of excess nutrients, salts, and pathogens.

The system includes a large irrigation gun with 1" to 1½" orifice mounted onto a movable cart. 1200' or more flexible 4" PE pipe is attached to the cart on one end and a large reel on the other end. The reel serves as storage area for the pipe as the cart moves back to the reel. The reel is turned by a small engine which gradually pulls the flexible pipe and cart back to the reel/base.

442 - Pod System

Unit Type = Ea

Payment Rate, \$186.37, HU \$223.64

Description: A portable irrigation system consisting of Polyethylene (PE) pipe and pods that have attached sprinklers. This addresses installation of all pod style irrigation sprinkler systems.

Before Situation: Pastureland is flood irrigated and has poor irrigation efficiency and distribution uniformity. The slope and irregular shape of the field limit the potential for improved management to improve the irrigation efficiency or the distribution uniformity. Irrigation water moves both within the field and off it, resulting in wet areas, runoff and deep percolation. Runoff from the field flows into streams, water courses, and other water bodies. Excess applied irrigation water infiltrates into ground water causing degradation to the receiving waters.

After Situation: An irrigated pasture with a medium pressure irrigation system consisting of sprinkler pods along a PE line is installed. The pods and PE line are placed in different sections of the pasture by dragging both with a four wheeler.

The improved distribution uniformity and irrigation efficiency reduces the inefficient use of water on irrigated land, reducing irrigation water applied and energy use. Water application rates meet the pasture vegetation consumptive use requirements. Runoff and deep percolation as a result of irrigation are eliminated, and the receiving waters are no longer degraded.

442 - Renovation of Existing Sprinkler System

Unit Type = Ln Ft

Payment Rate, \$4.62, HU \$5.54

Description: Changing nozzles on center pivot or lateral move irrigation systems to low-pressure systems to improve efficiency of water use and reduce energy use.

Before Situation: A center pivot or lateral move system has high pressure sprinklers. The nozzles are worn and water is applied non-uniformly. Water runs off the field and degrades the receiving waters. Deep percolation in some parts of the field degrades the ground water quality. The runoff from the field causes soil erosion. The high pressure requirement for the system requires excess energy use.

After Situation: A Center Pivot or Linear Move sprinkler system with a span of 1300 linear feet is re-nozzled with low-pressure nozzles. The irrigation water is applied efficiently and uniformly to maintain adequate soil moisture for optimum plant growth. Runoff and deep percolation are eliminated, and the surface and ground water is no longer degraded. The irrigation induced soil erosion caused by runoff is also eliminated. The lower pressure requirements of the sprinklers reduce the energy used by the pump.

442 - Handline

Unit Type = Ln Ft

Payment Rate, \$3.05, HU \$3.65

Description: Installation of all hand line style irrigation sprinkler systems. Does not include irrigation mainline or risers, pumping plant, or other associated practices.

Before Situation: The typical installation will be on cropland with some existing inefficient irrigation. The farm is typically producing pasture, alfalfa or specialty crops, such as fresh vegetables.

After Situation: A hand line will be installed to increase irrigation water use efficiency. Water application rates will meet the crops use needs as well as soil intake rates in order to prevent irrigation induced erosion, runoff, and deep percolation. Installation includes the hand line. Improved distribution uniformity and irrigation efficiency will result.

443 – Irrigation System, Surface and Subsurface

443 - Surge Valve & Controller

Unit Type = Ea

Payment Rate, \$1283.54, HU \$1540.24

Description: Installation and utilization of a surge valve with automated controller (including all appurtenances) and installation labor needed to convert from a conventional surface irrigated system to a surge irrigation system. The surge valve will be used with PVC Gated Pipe or PE Gated Tubing to convey and distribute irrigation water to alternating irrigation sets in a timed surge cycle that results in reduced surging irrigation application. The surging action increases rate of advance along set length, reduces deep percolation at upper end of field, increases uniformity of application along row length, and on lower intake soils can significantly reduce runoff losses. The result is improved irrigation efficiency, reduced leaching and erosion losses, and conserved energy.

Before Situation: Unacceptable irrigation application uniformity along existing surface irrigation system furrow or border length caused by excessive run length or soil infiltration rate when operated with continuous inflow on existing system. System is over irrigated in attempt to adequately irrigate low end of field.

After Situation: A surge surface irrigation system is in place. After implementation, distribution uniformity and irrigation efficiency is improved, by reducing irrigation application volume and deep percolation losses. Runoff reductions, reduced energy use, and air quality improvements can also result.

443 - Aluminum Gated Pipe

Unit Type = Lb

Payment Rate, \$3.27, HU \$3.92

Description: Installation of surface Aluminum gated pipe to efficiently convey and distribute irrigation water in irrigation furrows, borders, or contour levees. Appurtenances include: gates, couplings, fittings, in-line valves, pressure relief valves, and air vent valves. Does not include flow meters, or a permanent inlet structure with or without filtration.

Before Situation: Typical before situation would include conveyance of water to surface irrigation distribution points with earthen ditches and distribution to individual furrows, borders, or contour levies by siphon tubes. The existing system would experience significant seepage ditch losses, and poor distribution uniformity.

After Situation: The installation will improve distribution uniformity, irrigation efficiency, and eliminate or reduce ditch seepage.

443 - Polyvinyl Chloride (PVC) Gated Pipe

Unit Type = Lb

Payment Rate, \$1.22, HU \$1.47

Description: Installation of surface PVC gated pipe to efficiently convey and distribute irrigation water in irrigation furrows, borders, or contour levees. Appurtenances include: gates, couplings, fittings, in-line valves, pressure relief valves, and air vent valves. Does not include flow meters, or a permanent inlet structure with or without filtration.

Before Situation: Typical before situation would include conveyance of water to surface irrigation distribution points with earthen ditches and distribution to individual furrows, borders, or contour levies by siphon tubes. The existing system would experience significant seepage ditch losses, and poor distribution uniformity.

After Situation: The installation will improve distribution uniformity, irrigation efficiency, and eliminate or reduce ditch seepage.

443 - Poly Irrigation Tubing

Unit Type = Lb

Payment Rate, \$1.98, HU \$2.38

Description: This practice includes installation of thin wall Polyethylene (PE) irrigation tubing with 2½-inch gates, or gated pipe installed in shallow above ground trenches to replace above ground canals used to deliver water to individual basins within a contour levee or basin surface irrigation system.

Before Situation: Typical before situation would include a contour levee or basin surface irrigation system. Irrigation water is delivered to individual basins in a field split into paddies using irrigation canals and field ditches.

After Situation: After implementation irrigation efficiency is improved, while reducing irrigation application volume, runoff, evaporation losses, and cold water damage to crops. Reduced energy use and air quality improvements can also result.

449 – Irrigation Water Management

449 - Basic IWM ≤ 30 acres

Unit Type = Ac

Payment Rate, \$21.32, HU \$25.59

Description: A low Intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). Soil moisture is determined by the feel method, volumes of irrigation water are based on energy or water district bills, records are kept on paper copies, and calculations are made by hand.

Before Situation: The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success.

After Situation: Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

449 - Basic IWM > 30 acres

Unit Type = Ac

Payment Rate, \$7.8, HU \$9.36

Description: A low Intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). Soil moisture is determined by the feel method, volumes of irrigation water are based on energy or water district bills, records are kept on paper copies, and calculations are made by hand.

Before Situation: The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success.

After Situation: Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

449 - Intermediate IWM ≤ 30 acres

Unit Type = Ac

Payment Rate, \$28.43, HU \$34.12

Description: A medium intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). Soil moisture is determined by in-field moisture sensors with manual downloads. Irrigation amounts are recorded from a flow meter near the pump. Records are input manually into an irrigation scheduling computer program.

Before Situation: The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success.

After Situation: Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

449 - Intermediate IWM > 30 acres

Unit Type = Ac

Payment Rate, \$9.99, HU \$11.99

Description: A medium intensity irrigation water management system for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). Soil moisture is determined by in field moisture sensors with manual downloads. Irrigation amounts are recorded from a flow meter near the pump. Records are input manually into an irrigation scheduling computer program.

Before Situation: The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success.

After Situation: Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations.

The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

449 - Advanced IWM ≤ 30 acres

Unit Type = Ac

Payment Rate, \$35.54, HU \$42.65

Description: A high intensity irrigation water management system for producers using a checkbook method with advanced methods of determining irrigation water applied, and estimating crop evapotranspiration, monitoring field soil moisture, or monitoring crop temperature stress. Methods include flow measurement, daily record keeping, and use of real-time evapotranspiration estimates (such as those provided dedicated weather stations) and/or soil moisture sensors with automated data logging to monitor field soil moisture content and/or crop temperature. For this scenario, soil moisture is determined by automated soil moisture monitoring stations equipped with telemetry data. Irrigation amounts are recorded from a flow meter near the pump. Telemetry data is automatically sent to a computer with irrigation software. Irrigator also receives real time data via mobile phone applications. Some data such as total water applied may be entered into computer software manually.

Before Situation: The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success.

After Situation: Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

449 - Advanced IWM > 30 acres

Unit Type = Ac

Payment Rate, \$12.19, HU \$14.63

Description: A high intensity irrigation water management system for producers using a checkbook method with advanced methods of determining irrigation water applied, and estimating crop evapotranspiration, monitoring field soil moisture, or monitoring crop temperature stress. Methods include flow measurement, daily record keeping, and use of real-time evapotranspiration estimates (such as those provided dedicated weather stations) and/or soil moisture sensors with automated data logging to monitor field soil moisture content and/or crop temperature. For this scenario, soil moisture is determined by automated soil moisture monitoring stations equipped with telemetry data. Irrigation amounts are recorded from a flow meter near the pump. Telemetry data is automatically sent to a computer with irrigation software. Irrigator also receives real time data via mobile phone applications. Some data such as total water applied may be entered into computer software manually.

Before Situation: The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success.

After Situation: Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.

449 - Soil Moist Sensors 1stYr

Unit Type = Ea

Payment Rate, \$834.26, HU \$1001.12

Description: Installation of soil moisture sensors such as tensiometers, gyp blocks, capacitance sensors etc, that are installed and read to determine point in time soil moisture by depth; and the labor of using the equipment for the first year. The installation includes the purchase of soil moisture meters and sensors, installation equipment, and labor to install and utilize sensors and readings in making IWM decisions during first year. Producer periodically monitors soil moisture sensors during the growing season. Meters used to read sensors may be portable.

This only applies to year one IWM. The appropriate labor only IWM scenario applies in subsequent contract years.

Before Situation: Producer uses feel method to estimate soil moisture for scheduling irrigation.

After Situation: Producer has installed four sensors at each monitoring site to a depth of four feet with one sensor representing each foot of depth. Producer uses periodic soil moisture measurements to schedule irrigation resulting in improved irrigation water management and reduced energy use.

449 - SoilMoist Sens.w.DataLogrs1stYR

Unit Type = Ea

Payment Rate, \$1158.74, HU \$1390.48

Description: Installation of electrical soil moisture sensors such as capacitance or resistance sensors that are monitored to determine soil moisture. The installation includes the purchase of soil moisture sensors, installation equipment (probe or auger), and a data logger to log continuous soil moisture data that can be downloaded to a personal computer and associated graphing software. Also includes the labor associated with using the equipment for the first year. *This only applies to year one IWM. The appropriate labor only IWM scenario applies in subsequent contract years.*

Before Situation: Producer uses feel method to estimate soil moisture for scheduling irrigation in the field.

After Situation: Producer has installed four sensors at each monitoring site to a depth of four feet with one sensor representing each foot of depth. Producer periodically downloads continuously recorded soil moisture measurements that are used to schedule irrigation more effectively resulting in improved irrigation water management and reduced energy use.

449 - Advanced Weather Station and Soil Moisture Sensors 1st Year

Unit Type = Ac

Payment Rate, \$49.87, HU \$59.84

Description: This scenario includes the equipment, installation, and data interpretation services for intensive irrigation management and water resources monitoring and evaluation. Installation includes an advanced weather station, soil moisture sensors, and data logger and telemetry equipment. Scenario also includes the engineering consultation services labor associated with the analysis of collected data and development of management recommendations. This scenario applies only to the first year. The appropriate labor only scenario applies in subsequent years. This scenario applies only to sites without existing access to equivalent climatic data supplied by the advanced weather station. Locations with adequate weather data should consider the soil moisture sensor with data loggers first year scenario.

Before Situation: Producer uses the feel method to estimate soil moisture for scheduling irrigations.

After Situation: An advanced weather station, soil moisture sensors, and telemetry equipment are used to continuously collect data. Engineering consultants hired by the producer analyze data and make irrigation recommendations and evaluate water resources data. Service results in improved irrigation water management and optimally scheduled irrigations.

449 - Advanced Weather Station and Soil Moisture Sensors Years 2+

Unit Type = Ac

Payment Rate, \$19.1, HU \$22.92

Description: Engineering consultation service labor to analyze data and make and implement irrigation management recommendations using the equipment installed under the Advanced Weather Station and Soil Moisture Monitoring Year 1 scenario. Data sources include an advanced weather station, soil moisture sensors with data loggers, flow meters, etc. It is assumed that an engineer or other water resources professional will provide the data analysis services.

Before Situation: An advanced weather station and soil moisture sensors with a telemetry system has been installed.

After Situation: Engineering consultants hired by the producer analyze data collected by the previously installed equipment and make irrigation recommendations and evaluate water resources data. Service results in improved irrigation water management and optimally scheduled irrigations.

464 – Irrigation Land Leveling**464 - Irrigation Land Leveling (\$100,000 cap per contract)**

Unit Type = Cu Yd

Payment Rate, \$1.58, HU \$1.89

Description: Level irrigated crop land to a planned grade to permit uniform and efficient application of irrigation water to the leveled land. Equipment used include dirt pans/carry-all/pan-scraper equipment that are laser or GPS guided.

Before Situation: Irregular field surface reduces uniformity of surface application and reduced irrigation efficiency by localized ponding, excessive deep percolation, and/or excess runoff/run-on.

After Situation: Cropland will be reshaped to provide uniform distribution of irrigation water in promote efficient use of irrigation water and achieve designed irrigation efficiencies.

464 - Irrigation Land Leveling Remote (\$100,000 cap per contract)

Unit Type = Cu Yd

Payment Rate, \$1.64, HU \$1.97

Description: Level irrigated crop land in remote locations (>50 miles from equipment source) to a planned grade to permit uniform and efficient application of irrigation water to the leveled land. Equipment used include dirt pans/carry-all/pan-scraper equipment that are laser or GPS guided. Field locations are remote and require transport of equipment at distances of 50 miles or greater.

Before Situation: Irregular field surface reduces uniformity of surface application and reduced irrigation efficiency by localized ponding, excessive deep percolation, and/or excess runoff/run-on. Field locations are remote requiring transport of equipment 50 miles or greater.

After Situation: Cropland will be reshaped to provide uniform distribution of irrigation water in promote efficient use of irrigation water and achieve designed irrigation efficiencies.

468 – Lined Waterway or Outlet**468 - Turf Reinforced Matting**

Unit Type = Sq Ft

Payment Rate, \$0.81, HU \$0.97

Description: Install trapezoidal or parabolic shaped waterway lined with Turf Reinforced Matting (TRM). 1/2 the channel is excavated. Excess excavation is spoiled in the immediate area. TRM is installed over 100% of the width of the waterway to prevent scour and aid in waterway establishment. Includes excavation, spoiling of excess material, and furnishing and installing TRM. Lined waterway width is measured from top of bank to top of bank.

Before Situation: Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation: The practice is installed using a hydraulic excavator. TRM is installed by laborers.

468 - Rock Lined - 12 inch

Unit Type = Sq Ft

Payment Rate, \$2.15, HU \$2.58

Description: Install trapezoidal or parabolic shaped waterway lined with riprap (D100 = 9", Velocity ~ 8 ft/sec). 1/2 the channel is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Riprap is installed over 100% of the width of the waterway to prevent scour. Includes excavation, spoiling of excess material, geotextile underlayment and installing 9" Rock Riprap. Lined waterway width is measured from top of bank to top of bank.

Before Situation: Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation: Waterway is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers.

468 - Rock Lined - 24 inch

Unit Type = Sq Ft

Payment Rate, \$4.79, HU \$5.74

Description: Install trapezoidal or parabolic shaped waterway lined with riprap (D100 = 18", Velocity ~ 11 ft/sec). 1/2 the channel is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Riprap is installed over 100% of the width of the waterway to prevent scour. Includes excavation, spoiling of excess material, geotextile underlayment and installing 18" Rock Riprap. Lined waterway width is measured from top of bank to top of bank.

Before Situation: Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation: Waterway is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers.

468 - Concrete

Unit Type = Sq Ft

Payment Rate, \$3.65, HU \$4.38

Description: Install trapezoidal or parabolic shaped waterway lined with concrete. 1/2 the channel is excavated, before excavation for concrete and subgrade material. Excess excavation is spoiled in the immediate area. Concrete is installed over 100% of the width of the waterway to prevent scour. Includes excavation, spoiling of excess material, 6" of clean sand or gravel subgrade, and 5" reinforced concrete slab. Lined waterway width is measured from top of bank to top of bank.

Before Situation: Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway. Usually installed in locations where rock or other lining materials are not readily available.

After Situation: Waterway is excavated using a hydraulic excavator. Concrete slab is placed on 6" of clean sand or #57 stone. Concrete is placed, graded and screened by laborers.

468 - Membrane

Unit Type = Sq Ft

Payment Rate, \$0.88, HU \$1.05

Description: Install trapezoidal or parabolic shaped waterway lined with a synthetic membrane. 1/2 the channel is excavated. Excess excavation is spoiled in the immediate area. Membrane is installed over 100% of the width of the waterway to prevent scour. Includes excavation, spoiling of excess material, and furnishing and installing synthetic membrane and geotextile underlayment. Lined waterway width is measured from top of bank to top of bank.

Before Situation: Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway. Usually installed in locations where rock or other lining materials are not readily available.

After Situation: The practice is installed using a hydraulic excavator. Membrane liner and geotextile underlayment is installed by laborers.

468 - Concrete Block

Unit Type = Sq Ft

Payment Rate, \$3.02, HU \$3.62

Description: Install trapezoidal shaped waterway or chute lined with concrete blocks. 1/2 the channel is excavated. Excess excavation is spoiled in the immediate area. 8"x8"x16" standard concrete blocks are installed over 100% of the width of the waterway/chute to prevent scour. Includes excavation, spoiling of excess material, 3" stone subgrade, geotextile and furnishing and installing standard concrete blocks. Lined waterway width is measured from top of bank to top of bank.

Before Situation: Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway. Usually installed in locations where rock or other lining materials are not readily available.

After Situation: Chute is installed on a 3 to 1 slope. The practice is installed using a hydraulic excavator. Geotextile and concrete blocks are installed by laborers.

484 – Mulching**484 - Organic Material**

Unit Type = Ac

Payment Rate, \$223.05, HU \$267.66

Description: Application of straw mulch or other state approved natural material to reduce erosion and facilitate the establishment of vegetative cover.

Before Situation: Typical scenario ranges is a 1.0 acre disturbed site around a newly constructed structural practice. The potential for soil erosion is high and mulch is needed to stabilize the soil and facilitate the establishment of vegetative cover.

After Situation: Straw mulch has been applied to areas needing mulch. Erosion and sedimentation is reduced, water and soil quality is protected, and vegetative cover is established.

484 - Erosion Control Blanket

Unit Type = Sq Ft

Payment Rate, \$0.13, HU \$0.15

Description: Installation of erosion control blanket on critical areas with steep slopes, or disturbed site around a newly constructed structural practice such as a grassed waterway. Blanket is typically made of coconut coir, wood fiber, straw and is typically covered on both sides with polypropylene netting. Used to help control erosion and establish vegetative cover.

Before Situation: There are areas of concentrated flow or overland flow which require shaping or other earthwork practice installation. Soil erosion is a concern and there is little to no vegetation.

After Situation: The erosion control blanket is placed on concentrated flow areas and secured with ground stables. Soil erosion is minimized and vegetative cover is established.

484 - Synthetic Material

Unit Type = Ln Ft

Payment Rate, \$1.07, HU \$1.29

Description: Installation of geotextile, biodegradable plastic, polyethylene plastic, or other state approved synthetic mulch to conserve soil moisture, facilitate plant establishment and provide erosion control. Payment based on actual area covered by mulching material.

Before Situation: Site conditions vary. Typically scenarios include new tree and shrub plantings, irrigated orchards, vineyards, or specialty crops. Water quantity and plant condition are concerns.

After Situation: Synthetic mulch is applied in rows with a mulch layer or by other mechanized means. Soil moisture is conserved, energy use associated with irrigation is decreased.

484 - Tree and Shrub squares

Unit Type = Ea

Payment Rate, \$1.61, HU \$1.93

Description: Weed barrier fabric or other suitable natural or synthetic mulch is installed with a new tree and shrub planting. Used to conserve soil moisture to facilitate tree/shrub establishment. Rate is per tree/shrub and assumes 1 square yard of weed barrier fabric and 5 staples/tree.

Before Situation: Site conditions vary. Sites are often remote and trees may not be planted in rows, requiring each tree to be mulched individually. Water quantity and plant condition are concerns.

After Situation: Weed barrier fabric squares are installed with 5 sod staples each, around individual trees and shrubs to conserve soil moisture and facilitate tree/shrub establishment.

490 – Tree & Shrub Site Preparation

490 - Mechanical - Heavy

Unit Type = Ac

Payment Rate, \$176.27, HU \$211.53

Description: This practice involves the use of heavy machinery to treat an area in order to improve site conditions for establishing trees and/or shrubs. Sites include trees and brush cover that is not appropriate to the site or providing the desired condition for the landowner.

Before Situation: The site is dominated by undesirable vegetation including herbaceous plants and significant amounts of woody vegetation (trees and brush) occupying the site. There is also a significant component of woody debris onsite. Noxious and invasive species may also be present on the site. Soils are compacted as a result of past heavy equipment activities or from other land uses. Sheet and rill erosion is occurring in areas where the soil was severely disturbed exposing bare soil. If left untreated, soil compaction and erosion issues will result in poor survival or reduced growth of trees/shrubs to be established on the site.

After Situation: Undesirable vegetation has been removed using mechanical methods reducing competition for target trees and/or shrubs. Woody debris has been removed to facilitate tree/shrub planting operations. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size is 40 acres.

490 - Mechanical - Light

Unit Type = Ac

Payment Rate, \$60.62, HU \$72.74

Description: This practice involves the use of light/moderate machinery to clear above ground vegetation and to also rip/cut/lift underground root systems in order to improve site conditions for establishing trees and/or shrubs. Sites include abandoned fields, pastures, rangelands, agricultural fields or forestlands that have been harvested.

Before Situation: Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs. Soils are compacted as a result of harvesting heavy equipment activities or other land uses.

After Situation: Undesirable vegetation has been removed using a bush hog to knock down stand vegetation and heavy tillage equipment is used to breakup and lift root systems, breakup plow pans (<18" deep), thus enhancing the conditions for planting and survival of trees and/or shrubs. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

490 - Chemical - Ground Application

Unit Type = Ac

Payment Rate, \$106.29, HU \$127.55

Description: This practice involves the use of various herbicides applied using ground-based machinery in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Sites include abandoned fields, pastures, rangelands, agricultural fields or forestland that was recently harvested.

Before Situation: Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Situation: Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

490 - Chemical - Aerial Application

Unit Type = Ac

Payment Rate, \$43.67, HU \$52.54

Description: This practice involves the use of herbicides applied by helicopter in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. This includes open land such as abandoned fields, pastures or forestlands that were recently harvested.

Before Situation: Undesirable vegetation is present on the site including herbaceous plants and woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Situation: Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

490 - Chemical - Hand Application

Unit Type = Ac

Payment Rate, \$61.01, HU \$73.21

Description: This practice involves the use of various herbicides applied using backpack sprayer or similar equipment, and hack-n-squirt for tree control, in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Sites include lands such as old fields, pastures, rangelands, agricultural fields, previous forestlands that have been abandoned and are now covered with a mixture of grasses, forbs, shrubs and some remnant trees.

Before Situation: Undesirable vegetation, including woody and herbaceous plants, occupy 100 % of the on the site. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Situation: Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

490 - Hand site preparation

Unit Type = Ac

Payment Rate, \$146.42, HU \$175.71

Description: This practice involves grubbing all vegetation from the area of ground prior to the establishment of trees and/or shrubs. Sites include land such as old fields, pastures, rangelands, agricultural fields, or abandoned forests that are mostly grass or weed covered.

Before Situation: The site contains undesirable vegetation including herbaceous and woody plants. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs. Soils are compacted as a result of recent timber harvesting activities or other land uses. If left untreated poor survival or reduced growth of trees/shrubs will occur and wildlife habitat conditions will not improve.

After Situation: All undesirable vegetation has been grubbed out of a 1 ft by 1 ft area, leaving bare soil, at each planting spot. Typical tree spacing would be about 8 feet (680 trees per acre). Tree seedlings and/or shrubs are planted at each spot. Adequate moisture, space and light is available allowing plants to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size is 10 acres.

490 - Windbreak, mechanical only

Unit Type = Ac

Payment Rate, \$59.26, HU \$71.11

Description: This practice involves the use of various mechanical equipment in order to prepare a site for tree row planting and remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Sites include abandoned fields, pastures, rangelands, or forestland that was recently harvested.

Before Situation: Ground needs prepared for establishment of trees and shrubs in rows. Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Situation: Ground has been prepared to establish tree and shrub rows. Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 1.5 acres.

500 – Obstruction Removal

500 - Removal and Disposal of Brush and Trees < 6 inch Diameter

Unit Type = Ac

Payment Rate, \$681.66, HU \$817.99

Description: Remove and disposal of brush and trees < 6 inches in diameter by demolition, excavation or other means required for removal. Dispose of all brush and trees so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all brush and trees by removal to an approved landfill, wood chipping and or land distribution, or recycling center, burial at an approved location or burning. If burning is used, implement appropriate smoke management to protect public health and safety. Remove and dispose of brush and trees in order to apply conservation practices or facilitate the planned land use. B

Before Situation: On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is not intended for the removal of obstructions from aquatic environments.

After Situation: The typical area will be a 2.0 acre impaired area. The removal of brush and trees < 6 inch diameter will be performed with the use of equipment and hand labor. Dispose of all brush and trees from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetated or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

500 - Removal and Disposal of Brush and Trees > 6 inch Diameter

Unit Type = Ac

Payment Rate, \$1331.51, HU \$1597.81

Description: Remove and disposal of brush and trees > 6 inches in diameter by demolition, excavation or other means required for removal. Dispose of all brush and trees so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all brush and trees by removal to an approved landfill, wood chipping and or land distribution, or recycling center, burial at an approved location or burning. If burning is used, implement appropriate smoke management to protect public health and safety. Remove and dispose of brush and trees in order to apply conservation practices or facilitate the planned land use.

Before Situation: On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is not intended for the removal of obstructions from aquatic environments.

After Situation: The typical area will be a 2.0 acre impaired area. The removal of brush and trees > 6 inch diameter will be performed with the use of equipment and hand labor. Dispose of all brush and trees from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetated or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

500 - Removal and Disposal of Fence

Unit Type = Ln Ft

Payment Rate, \$0.6, HU \$0.72

Description: Remove and disposal of all existing fences by demolition, excavation or other means required for removal. Dispose of all fence materials from the site so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all materials by removal to an approved landfill, wood chipping and land distribution, or recycling center, burial at an approved location or burning. If burning is used, implement appropriate smoke management to protect public health and safety. Remove and dispose of the unwanted fence obstruction in order to apply conservation practices such as Upland Wildlife Habitat Management (645) or facilitate the planned land use.

Before Situation: On any land where existing fence interferes with planned land use development, public safety, wildlife movement and habitat, or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is not intended for the removal of obstructions from aquatic environments.

After Situation: The typical fence will be 2640 in linear feet. The removal of the fence will be performed with the use of equipment and hand labor. Dispose of all debris from the fence removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetated or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape such as Upland Wildlife Habitat Management (645).

500 - Removal and Disposal of Rock and or Boulders

Unit Type = Cu Yd

Payment Rate, \$75.83, HU \$90.99

Description: Remove and disposal of rock and or boulders by drilling, blasting, demolition, excavation or other means required for removal. Dispose of all rocks and or boulders so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all rock and or boulders by removal to an approved location, or reuse location. Remove and dispose all rock and or boulders in order to apply conservation practices or facilitate the planned land use.

Before Situation: On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is not intended for the removal of obstructions from aquatic environments.

After Situation: The typical area will be a 5.0 acre impaired area. The removal of rock and or boulders will be performed by drilling, blasting, demolition, excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all rocks and boulders from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetated or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

500 - Removal and Disposal of Steel and or Concrete Structures

Unit Type = Sq Ft

Payment Rate, \$8.6, HU \$10.31

Description: Remove and disposal of steel and or concrete structures by demolition, excavation or other means required for removal. Dispose of all steel and or concrete structures so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all steel and or concrete structures by removal to an approved location, or reuse location. Remove and dispose all steel and or concrete structures in order to apply conservation practices or facilitate the planned land use.

Before Situation: On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is not intended for the removal of obstructions from aquatic environments.

After Situation: The typical area will be a 2000 square feet of impaired land. The removal of steel and or concrete structures will be performed by demolition, excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all steel and or concrete structures from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetated or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

500 - Removal and Disposal of Wood Structures

Unit Type = Sq Ft

Payment Rate, \$4.3, HU \$5.16

Description: Remove and disposal of wood structures by demolition, excavation or other means required for removal.

Dispose of all wood structures so that it does not impede subsequent work or cause onsite or offsite damage. Dispose of all wood structures by removal to an approved location, landfill, or reuse location. Remove and dispose all wood structures in order to apply conservation practices or facilitate the planned land use.

Before Situation: On any land where existing obstructions interfere with planned land use development, public safety or infrastructure. The site may be abandoned mine lands, construction sites, recreation areas, farms, ranches, and areas affected by natural disasters. This is not intended for the removal of obstructions from aquatic environments.

After Situation: The typical area will be a 2000 square feet of impaired land. The removal of wood structures will be performed by demolition, excavation or other means required for removal with the use of heavy equipment and hand labor. Dispose of all wood structures from the obstruction removal so that it does not impede subsequent work or cause onsite or offsite damage. Revegetated or otherwise protect from erosion disturbed areas as soon as possible. Refer to NRCS Conservation Practice Standard 342, Critical Area Planting for seedbed preparation, seeding, fertilizing, and mulching requirements. The practice is to improve site conditions in order to apply conservation practices or facilitate better use of the landscape.

511 – Forage Harvest Management

511 - Improved Forage Quality

Unit Type = Ac

Payment Rate, \$3.12, HU \$3.74

Description: Improved cultural practices and recordkeeping result in better forage quality and better livestock performance.

Before Situation: Forage cutting heights are as close to the ground as equipment will allow resulting in very low stubble height. Plant regrowth is very slow. Forage quality tests are not regularly done. Records are not regularly kept.

After Situation: Forage cutting heights are raised to leave at least 3-4" stubble height for cool season grasses and 6" for warm season grasses. Increased residual forage results in much faster plant regrowth. Forage quality tests are submitted to an accredited lab for analysis. Records regularly kept to track increased forage quality and improved livestock performance.

511 - Organic Preemptive Harvest

Unit Type = Ac

Payment Rate, \$3.12, HU \$3.74

Description: Preemptive harvest of forage crops to prevent damage from insects (such as leafhopper on alfalfa) or other pests results in better forage quality and better livestock performance.

Before Situation: Forage pests are usually controlled with pesticides.

After Situation: In organic or transitioning to organic systems, forage pests are controlled by executing a preemptive harvest before pests can damage forage quality. Forage yields are reduced because of immature stage of forage growth. Forage tests are submitted to an accredited lab for analysis. Records of forage quality components are used to adjust feeding rations.

511 - Perennial Crops - Delayed Mowing

Unit Type = Ac

Payment Rate, \$4.28, HU \$5.13

Description: In perennial forage crops, the delaying the harvest of the first cutting to promote the reproduction of ground nesting birds. Delaying the harvest of the first cutting will benefit ground nesting birds; research at the University of Vermont showed that breeding success for declining grassland songbirds (e.g. Bobolink) went from 0 on a regularly harvested hay field to 2.8 fledglings per female per year when the first harvest on a hayfield was delayed until August 1st. Bobolinks, Eastern Meadowlarks, and Savannah Sparrows require a nesting period to fledge young that lasts through the end of July in most parts of the eastern US. The delayed harvest results in a decrease in overall forage quality. Farmers could see as much as a 50% reduction in market value due to declines in protein (~50%) and digestibility (~20%), making the forage crop less palatable and lower in relative feed value. The selected fields should be large enough to promote ground nesting birds. After young have fledged the field will be harvested for dry forages.

Before Situation: Perennial forage crops are produced and harvested; ground nesting birds are disturbed and/or fledgling birds are killed in the process.

After Situation: Annual crops are harvested with a delayed mowing; forage quality is compromised, however, the survival of ground nesting birds is promoted.

511 - Doublecropping - Delayed harvest and subsequent planting

Unit Type = Ac

Payment Rate, \$5.44, HU \$6.53

Description: In double cropped annual forages, delaying the harvest of the first crop will provide feed and shelter for ground nesting birds. Delaying the harvest results in a decrease in overall forage quality. The selected fields should be large enough to promote ground nesting birds. After the young have fledged the second crop will be planted, approximately one month later than normal. After young have fledged the field will be chopped and used as grain or silage. This practice is best planned cooperatively with the farmer and appropriate wildlife agencies far enough in advance to reduce disturbance to ground nesting birds. For example, Tricolored Blackbirds need a 35-day window from the time of nest building to fledge young and the silage needs to remain uncut until then.

Before Situation: Double cropped annual forage crops are produced and harvested; ground nesting birds are disturbed and/or fledgling birds are killed in the process.

After Situation: Double cropped annual crops are harvested with a delayed mowing and a subsequent later planting of the second crop; forage quality is compromised somewhat, however, the survival of ground nesting birds is promoted.

512 – Forage and Biomass Planting

512 - Native Perennial 1 species

Unit Type = Ac

Payment Rate, \$154.97, HU \$185.96

Description: Establish or reseed adapted perennial native grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of native grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation: Poorly managed/degraded pasture land or cropland being converted to pasture and/or hay.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Native Perennial 1 species Low Input

Unit Type = Ac

Payment Rate, \$93.71, HU \$112.46

Description: Establish or reseed adapted perennial native grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of native grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertility and pH are not needed. Seed, equipment and labor for seed bed prep, tillage, seeding, and spreading are included.

Before Situation: Poorly managed/degraded pasture land or cropland being converted to pasture and/or hay.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Native Perennial 2 or more species

Unit Type = Ac

Payment Rate, \$270.41, HU \$324.5

Description: Establish or reseed with 2 or more adapted perennial native warm season grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial native warm season grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation: Existing stand of perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable NWSG species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture and/or biomass production.

512 - Native Perennial 2 or more species with Low Input

Unit Type = Ac

Payment Rate, \$213.373, HU \$256.47

Description: Establish or reseed with two or more adapted perennial native warm season grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial native warm season grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertility and pH are not needed. Seed, equipment and labor for seed bed prep, tillage, seeding, and spreading are included.

Before Situation: Existing stand of perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable NWSG species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture and/or biomass production.

512 - Introduced Cool Season Grasses with Legumes

Unit Type = Ac

Payment Rate, \$144.29, HU \$173.15

Description: Establish or reseed adapted perennial introduced cool season grasses and legumes to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation: Poor or nonexistent stand of grass species. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Introduced Cool Season Grasses with Legumes with Low Input

Unit Type = Ac

Payment Rate, \$64.05, HU \$76.86

Description: Establish or reseed adapted perennial introduced cool season grasses and legumes to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertility and pH are not needed. Seed, equipment and labor for seed bed prep, tillage, seeding, and spreading are included.

Before Situation: Poor or nonexistent stand of grass species. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Introduced Warm Season Grasses

Unit Type = Ac

Payment Rate, \$176.3, HU \$211.56

Description: Establish or reseed adapted introduced warm season grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced warm season grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation: Existing stand of perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Introduced Warm Season Grasses with Low Input

Unit Type = Ac

Payment Rate, \$96.06, HU \$115.27

Description: Establish or reseed adapted introduced warm season grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced warm season grasses for pasture, hay land, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertility and pH are not needed. Seed, equipment and labor for seed bed prep, tillage, seeding, and spreading are included.

Before Situation: Existing stand of perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Grass Establishment-Sprigging

Unit Type = Ac

Payment Rate, \$228.59, HU \$274.3

Description: Sprigging new grasses with sprigging application for the purpose of providing forage, increasing plant diversity, soil quality and fertility, and plant health. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, sprigs, equipment and labor for seed bed prep, tillage, sprigging ,and spreading.

Before Situation: Poor or nonexistent stand of grass species. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation: Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hay land, pasture, and/or biomass production.

512 - Overseeding Legumes

Unit Type = Ac

Payment Rate, \$147.5, HU \$176.99

Description: Establishment of legumes for the purpose of increasing plant diversity, soil quality and fertility, and plant health and enhancing the quality of forage. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading.

Before Situation: Existing stand of perennial grasses or monoculture with no legumes present .

After Situation: Legumes will be maintained through proper grazing management and improve plant diversity and soil quality.

516 – Livestock Pipeline**516 - PVC (Iron Pipe Size)**

Unit Type = Lb

Payment Rate, \$3.62, HU \$4.35

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - PVC (Iron Pipe Size) <3 inch with boring

Unit Type = Lb

Payment Rate, \$4.22, HU \$5.07

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Includes boring. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - PVC (Iron Pipe Size) >3 inch with boring

Unit Type = Lb

Payment Rate, \$4.32, HU \$5.18

Description: Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Includes Boring. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - HDPE (Iron Pipe Size & Tubing)

Unit Type = Lb

Payment Rate, \$4.07, HU \$4.88

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Appurtenances include: fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - HDPE (Iron Pipe Size & Tubing) <3 inch with boring

Unit Type = Lb

Payment Rate, \$4.7, HU \$5.64

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Includes boring. Appurtenances include: fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - HDPE (Iron Pipe Size & Tubing) >3 inch with boring

Unit Type = Lb

Payment Rate, \$4.81, HU \$5.77

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Includes boring. Appurtenances include: fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - Surface HDPE (Iron Pipe Size & Tubing)

Unit Type = Lb

Payment Rate, \$2.41, HU \$2.89

Description: On-ground surface installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - Steel (Iron Pipe Size)

Unit Type = Lb

Payment Rate, \$1.79, HU \$2.15

Description: Below ground installation of Steel (Iron Pipe Size) pipeline. Steel (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - Surface Steel (Iron Pipe Size)

Unit Type = Lb

Payment Rate, \$1.47, HU \$1.76

Description: On-ground surface installation of Steel (Iron Pipe Size) pipeline. Steel (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Appurtenances include: couplings, fittings, expansion joints, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - HDPE (Iron Pipe Size & Tubing) - Remote locations

Unit Type = Lb

Payment Rate, \$4.25, HU \$5.1

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is weight of pipe material in pounds. Appurtenances include: fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included. Scenario specifically applies to remote locations that are 50 or miles from source of equipment and/or materials.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - 1.25 inch 160 psi PVC-SDR per foot

Unit Type = Ln Ft

Payment Rate, \$1.45, HU \$1.74

Description: Below ground installation of PVC-SDR pipeline. PVC is manufactured in sizes (nominal diameter) from ½-inch to 36-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is feet. Appurtenances include: couplings, fittings, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

516 - 1.5 inch HDPE per foot

Unit Type = Ln Ft

Payment Rate, \$1.93, HU \$2.31

Description: Below ground installation of HDPE (Iron Pipe Size & Tubing) pipeline. HDPE (IPS & Tubing) is manufactured in sizes (nominal diameter) from ½-inch to 24-inch; typical practice sizes range from 1-inch to 4-inch. The scenario unit is linear feet of pipeline installed. Appurtenances include: fittings, anchors, thrust blocks, gate valves (2), air release valves (2), drain valve (1), and pressure relief valve (1). Revegetation is not included.

Before Situation: Water supplies need to be conveyed through pipelines for use by livestock or wildlife.

After Situation: Pipeline(s) convey and/or distribute water to storage and/or watering facilities, for use by livestock or wildlife.

521A – Pond Sealing or Lining, Flexible Membrane521A - Flexible Membrane - Uncovered without liner drainage or venting

Unit Type = Sq Yd

Payment Rate, \$7.31, HU \$8.78

Description: Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage.

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521A - Flexible Membrane - Uncovered with liner drainage or venting

Unit Type = Sq Yd

Payment Rate, \$9.56, HU \$11.47

Description: Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage, and liner drainage or venting.

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521A - Flexible Membrane - Covered without liner drainage or venting

Unit Type = Sq Yd

Payment Rate, \$8.54, HU \$10.24

Description: Installation of a flexible geosynthetic membrane liner to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, and a geotextile or soil cushion to protect liner from subgrade damage.

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521A - Flexible Membrane - Covered with liner drainage or venting

Unit Type = Sq Yd

Payment Rate, \$10.78, HU \$12.93

Description: Installation of a flexible geosynthetic membrane liner to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, a geotextile or soil cushion to protect liner from subgrade damage, and liner drainage or venting.

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521B – Pond Sealing or Lining, Soil Dispersant**521B - Soil Dispersant - Uncovered**

Unit Type = Cu Yd

Payment Rate, \$4.99, HU \$5.99

Description: Construction of a compacted soil liner, treated with a soil dispersant, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the dispersant with the soil liner under proper moisture conditions and compaction to the designed liner thickness. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile).

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with dispersants.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521B - Soil Dispersant - Covered

Unit Type = Cu Yd

Payment Rate, \$4, HU \$4.8

Description: Construction of a compacted soil liner, treated with a soil dispersant, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the dispersant with the soil liner under proper moisture conditions, compaction to the designed liner thickness, and placement of soil cover over the treated liner. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile).

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with dispersants.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521C – Pond Sealing or Lining, Bentonite Sealant**521C - Bentonite Treatment - Uncovered**

Unit Type = Cu Yd

Payment Rate, \$25.11, HU \$30.13

Description: Construction of a compacted soil liner, treated with bentonite, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the bentonite with the soil under proper moisture conditions, compaction to the designed liner thickness. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile).

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with dispersants.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521C - Bentonite Treatment - Covered

Unit Type = Cu Yd

Payment Rate, \$28.12, HU \$33.74

Description: Construction of a compacted soil liner, treated with bentonite, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the bentonite with the soil under proper moisture conditions, compaction to the designed liner thickness, and placement of soil cover over the treated liner. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile).

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with bentonite.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521D – Pond Sealing or Lining, Compacted Clay**521D - Material haul < 1 mile**

Unit Type = Cu Yd

Payment Rate, \$9.5, HU \$11.39

Description: Construction of a compacted soil liner, treated with compacted clay, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes compaction of the soil liner under proper moisture conditions to the designed liner thickness, and soil cover to protect the finished liner. Material haul < 1 mile.

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits. An adequate quantity of soil suitable for constructing a clay liner without amendments is available at an economical haul distance. Material haul < 1 mile.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

521D - Material haul > 1 mile

Unit Type = Cu Yd

Payment Rate, \$8.84, HU \$10.61

Description: Construction of a compacted soil liner, treated with compacted clay, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes compaction of the soil liner under proper moisture conditions to the designed liner thickness, and protection of the finished liner. Material haul > 1 mile.

Before Situation: In-place soils at site exhibit seepage rates in excess of acceptable limits. An adequate quantity of soil suitable for constructing a clay liner without amendments is available at an economical haul distance.

After Situation: Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.

528 – Prescribed Grazing**528 - Range Standard (\$7,500 cap per contract year)**

Unit Type = Ac

Payment Rate, \$2.63, HU \$3.15

Description: Design and implementation of a grazing system that will enhance rangeland health and ecosystem function as well as optimize efficiency and economic return through monitoring (ex: photo points, stubble height after grazing, etc) & record keeping.

Before Situation: Current grazing system exhibits undesirable and inefficient use of forage plants and such use may have a negative impact on rangeland health, as well as soil and water resources. Stocking rates are likely higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.

After Situation: Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances rangeland health and function through protection of sensitive areas, and efficient harvest of forage resources. Grazing system success will be evaluated through short term monitoring.

528 - Range Long Term Monitoring (\$12,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$7.06, HU \$8.47

Description: Design and implementation of a grazing system that will enhance rangeland health and ecosystem function as well as optimize efficiency and economic return through monitoring (ex: trend, composition, production, etc), record keeping.

Before Situation: Current grazing system exhibits undesirable and inefficient use of forage plants and such use may have a negative impact on rangeland health, as well as soil and water resources. Stocking rates are likely higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.

After Situation: Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances rangeland health and function through proper rest and recovery periods, protection of sensitive areas, proper utilization, and efficient harvest of forage resources. Grazing system success will be evaluated through long term monitoring.

528 - Habitat Mgt. Standard (\$7,500 cap per contract year)

Unit Type = Ac

Payment Rate, \$7.22, HU \$8.66

Description: Development and implementation of a grazing schedule that will enhance habitat components for the identified wildlife species of concern.

Before Situation: Wildlife cover, shelter, food, water and movement are limited due to grazingland condition. Plant health and vigor are negatively impacted by one or more of the following: poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased runoff and erosion. In addition reduced vegetative cover increases the opportunity for encroachment of noxious and invasive weeds.

After Situation: A grazing system is altered and/or enhanced to benefit habitat for targeted wildlife species. Additional benefits include improved rangeland and/or pasture health, protection of sensitive areas, improved water quality and reduced risk of invasive or noxious weed encroachment.

528 - Habitat Mgt. Long Term Monitoring (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$17.15, HU \$20.57

Description: Development and implementation of a grazing schedule that will enhance habitat components for the identified wildlife species of concern.

Before Situation: Wildlife cover, shelter, food, water and movement are limited due to grazingland condition. Plant health and vigor are negatively impacted by one or more of the following: poor grazing distribution, timing of grazing and inadequate rest and recovery periods. Water quality may be impacted by increased runoff and erosion. In addition reduced vegetative cover increases the opportunity for encroachment of noxious and invasive weeds.

After Situation: A grazing system is altered and/or enhanced to benefit habitat for targeted wildlife species. Additional benefits include improved rangeland and/or pasture health, adequate rest and recovery periods, protection of sensitive areas, improved water quality and reduced risk of invasive or noxious weed encroachment. In order to achieve this, implementation of a rest/rotation or deferred grazing system will be required. A portion of the acres will be deferred during periods of critical wildlife use.

528 - Pasture Standard (\$7,500 cap per contract year)

Unit Type = Ac

Payment Rate, \$10.93, HU \$13.11

Description: Design and implementation of a grazing system that will enhance pasture condition and ecosystem function as well as optimize efficiency and economic return through monitoring (ex: photo points, stubble height after grazing, etc) & record keeping.

Before Situation: Current grazing system exhibits undesirable and inefficient use of forage plants and such use may have a negative impact on pasture condition, as well as soil and water resources. Stocking rates are likely higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.

After Situation: Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas, and efficient harvest of forage resources. Grazing system success will be evaluated through short term monitoring.

528 - Pasture Intensive (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$18.23, HU \$21.88

Description: Design and implementation of a grazing system that will enhance pasture condition and ecosystem function as well as optimize efficiency and economic return through monitoring (ex: trend, composition, production, etc), record keeping.

Before Situation: Current grazing system exhibits undesirable and inefficient use of forage plants and such use may have a negative impact on pasture condition, as well as soil and water resources. Stocking rates are likely higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.

After Situation: Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through proper rest and recovery periods, protection of sensitive areas, proper utilization, and efficient harvest of forage resources. Grazing system success will be evaluated through long term monitoring.

528 - Pasture Deferment (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$18.31, HU \$21.97

Description: Defer the pasture for 90 days and up to a growing season to manage for invasive weeds when necessary, to improve the health of the plants and/or provide nesting habitat for wildlife species. Keep records of dates out and monitor to determine when desired objectives of deferment are met.

Before Situation: Over-grazed pasture, a pasture with a low condition score, or a newly established pasture converted from cropland with a need for proper grazing management.

After Situation: Improve the health and vigor of the sward, through deferment of grazing and improve the nesting habitat for wildlife.

528 - Range Deferment (\$10,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$8.48, HU \$10.18

Description: Defer Rangeland for up to one year to manage for invasive weeds/brush, prescribed burning, to improve the rangeland health and/or provide nesting habitat for wildlife species. Keep records of dates out and monitor to determine when desired objectives of deferment are met.

Before Situation: Over-grazed pasture, a native rangeland with declining rangeland health, or a newly established range planting converted from cropland with a need for proper grazing management.

After Situation: Improve the health and vigor native rangeland, through deferment of grazing and improve the nesting habitat for wildlife.

528 - Targeted Grazing (\$10,000 cap per contract year)

Unit Type = Head / Day

Payment Rate, \$1.84, HU \$2.21

Description: Management of woody non-herbaceous plant species through the use of livestock that are closely herded to concentrate grazing on targeted shrubs. Area is moderate rolling to gentle sloping, moderately deep to deep soils that have dense stands of woody non-herbaceous species that exceed the desirable ecological site condition.

Before Situation: Area consist of dense stands of woody non-herbaceous species that exceed the desirable ecological site condition degrading forage quality, promoting noxious and invasive species, increasing risk of soil erosion and degrading wildlife habitat.

After Situation: Woody species are grazed to limit the regrowth of shrubs and achieve a desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels.

533 – Pumping Plant**533 - Electric-Powered Pump ≤ 5 Hp**

Unit Type = HP

Payment Rate, \$589.16, HU \$707

Description: A submersible electric-powered pump is installed in a well or structure; or a close-coupled 1 Hp electric-powered centrifugal pump is mounted on a platform. It is used for watering livestock as part of a prescribed grazing system; or for pressurizing a small irrigation system; or for transferring liquid waste in a waste transfer system.

Before Situation: Livestock: The present gravity flow system is inadequate to provide the proper flow rate for a prescribed grazing system.

Irrigation: Available water is at an insufficient pressure to allow for even distribution of water.

Waste Transfer: Contaminated water needs to be moved to a containment facility.

After Situation: Livestock: Water is transferred at a sufficient rate and pressure to meet the requirements of a prescribed grazing system.

Irrigation: A properly designed pump is installed to improve irrigation efficiency and reduce energy usage.

Waste Transfer: Liquid wastes that have been collected through a waste transfer system are now efficiently transferred to an appropriate treatment or storage facility.

533 - Electric-Powered Pump ≤ 5 HP with Pressure Tank

Unit Type = HP

Payment Rate, \$1359.16, HU \$1630.99

Description: A submersible electric-powered pump is installed in a well or structure; or a close-coupled 1 Hp electric-powered centrifugal pump is mounted on a platform. It is used for watering livestock as part of a prescribed grazing system; or for pressurizing a small irrigation system.

Before Situation: Livestock: The present gravity flow system is inadequate to provide the proper flow rate for a prescribed grazing system.

Irrigation: Available water is at an insufficient pressure to allow for even distribution of water.

After Situation: Livestock: Water is transferred at a sufficient rate and pressure to meet the requirements of a prescribed grazing system.

Irrigation: A properly designed pump is installed to improve irrigation efficiency and reduce energy usage.

533 - Electric-Powered Pump 5-10 HP

Unit Type = HP

Payment Rate, \$936.94, HU \$1124.33

Description: This is a close-coupled, electric-powered centrifugal pump mounted on a platform for pressurizing a large-sized sprinkler or very large microirrigation system or a very large-sized surface irrigation system or a very large-sized waste transfer system.

Before Situation: Irrigation: An existing irrigation system employs an inefficient, improperly sized pump that prevents efficient water application resulting in water loss and high energy use.

After Situation: Irrigation: A properly designed and efficient pumping plant is installed, reducing energy use and improving irrigation efficiency.

533 - Internal Combustion-Powered Pump 10 to 50HP

Unit Type = HP

Payment Rate, \$519.08, HU \$622.89

Description: Installation of a pump in an existing irrigation system or installation of a new pump on cropland. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley.

Before Situation: Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs,

or

Waste Transfer: various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.

After Situation: Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage.

Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

533 - Variable Frequency Drive

Unit Type = HP

Payment Rate, \$62.48, HU \$74.98

Description: This is an installation of electrical and electronic components designed to vary the frequency of the voltage to an electric motor and thus the ability to vary the speed of the motor. This directly affects pressure and flow rate. This also could give the operator the flexibility to operate several systems separately or at the same time.

Before Situation: Standard electrical connection from electrical utility to pump motor. No capability to match pump output pressure and/or flow rate to field(s) need(s). Result is over/under pressure(s) and/or flow rate(s), possible hydraulic anomalies, energy loss, and or inefficient water application in the irrigation system.

After Situation: VFD Modifications are implemented at the pump site to allow for varying the speed of a 40 Hp electric motor to match the pressure and flow requirements for a center pivot irrigation system.

533 - Internal Combustion-Powered Pump ≤ 50HP

Unit Type = HP

Payment Rate, \$516.17, HU \$619.41

Description: Installation of a pump in an existing irrigation system or installation of a new pump on cropland. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley.

Before Situation: Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs,

or

Waste Transfer: various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.

After Situation: Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage.

Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

533 - Internal Combustion-Powered Pump > 50 to 70 HP

Unit Type = HP

Payment Rate, \$386.59, HU \$463.91

Description: Installation of a pump in an existing irrigation system or installation of a new pump on cropland. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley.

Before Situation: Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs,

or

Waste Transfer: various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.

After Situation: Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage.

Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

533 - Internal Combustion-Powered Pump > 70 HP

Unit Type = HP

Payment Rate, \$298.26, HU \$357.91

Description: Replacement of a pump in an existing irrigation system or installation of a new pump on cropland that is 70 break HP pump or larger. Size of pump is determined by required GPM and pressure derived from a design for specific irrigation system on cropland. Scenario could also be used for a pump for silage leachate, barnyard runoff, and milk house waste (as part of a waste transfer system) at farm headquarters.

Before Situation: Irrigation: Either an existing irrigation system employs an inefficient, improperly-sized pump that leads to inefficient water delivery resulting in high energy costs,

or

Waste Transfer: various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.

After Situation: Irrigation Setting: For irrigation system, a properly designed pump is installed, reducing water and energy usage.

Waste Transfer Setting: For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

533 - Tractor Power Take Off (PTO) Pump

Unit Type = HP

Payment Rate, \$136.93, HU \$164.31

Description: A PTO driven pump to either transfer water for an irrigation system from a Pond - 378 (includes backflow prevention as appropriate) to cropland or; to transfer semi-solid/ liquid manure (as part of a waste transfer system) at the farm headquarters from a waste storage facility to an irrigation system or waste treatment facility. In both cases, a PTO driven pump is selected because the landowner has equipment available to supply power to the pump. Electricity is not readily available and/or a stationary engine is not a practical alternative.

Before Situation: Irrigation Setting: An existing surface irrigation system employs an inefficient, improperly sized pump that leads to inefficient water delivery resulting in high energy costs; Waste Transfer Setting: various types of semi-solid or liquid waste at the headquarters are uncollected causing surface and ground water issues. A transfer method for waste is needed. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.

After Situation: Irrigation Setting: A properly designed PTO-driven pump is installed, to transfer water to an Irrigation Pipeline (430) or Irrigation Canal or Lateral (320). Waste Transfer Setting: Wastes that have been collected through a waste transfer system are now efficiently transferred from a Waste Storage Facility (313) to an appropriate treatment facility or to an irrigation system. The pump typically will move 2,000 gallons per minute and is portable so that it can be used at several locations.

533 - Windmill-Powered Pump

Unit Type = Ft

Payment Rate, \$736.84, HU \$884.21

Description: A windmill is installed in order to supply a reliable water source for livestock and/or wildlife. The windmill includes the tower, concrete footings, wheel blade unit, sucker rod, down pipe, gear box, pump, plumbing, and well head protection concrete pad. Unit of feet is based on the diameter of the windmill vanes. As a result of installing this windmill.

Before Situation: In a rangeland or pasture setting, a reliable source of water for livestock is not available, or the spacing between water sources is such that grazing distribution and plant health are adversely impacted.

After Situation: A windmill, with a wheel ranging from 6' to 16' in diameter, will be installed over a well that is located to provide a reliable source of livestock water at the rate of at least 2 gpm, to facilitate proper grazing distribution and improved plant health. To increase reliability, water is pumped into a storage tank to provide a given number of days of supply. Installation includes the footings, wellhead protection concrete pad, tower, gear box, sail, sucker rod, down hole accessories, and a short outlet pipe to a storage tank.

533 - Photovoltaic-Powered Pump <200 ft TDH

Unit Type = Ea

Payment Rate, \$3343.55, HU \$4012.26

Description: Installation of a submersible solar-powered pump in a well or a live stream. The installation includes the pump, wiring, drop pipe, solar panels, mounts, inverter, and all appurtenances. Note: It is generally not advisable to use a storage battery for a number of reasons. A storage tank is generally the most efficient method to store energy.

Before Situation: Livestock: Inadequate supply or location of water for a prescribed grazing system. Eroded stream banks and degraded water quality due to livestock access to stream. Cattle are not well-distributed because of remote water location.

Irrigation: Pressure and flow rate is insufficient for uniform irrigation.

After Situation: The typical scenario assumes installation of 250 watts of photovoltaic (PV) panels, capable of operating a 1/4 Hp (0.25 Hp) solar-powered submersible pump in a well or other water source (Notes: 1) A PV panel is rated under standard and ideal conditions which will most likely not be replicated in the field; 2) 1 Hp is defined as 746 watts; 3) It is reasonable to expect a 1/4 Hp solar-powered submersible pump to deliver about 1.5 gpm and develop a pressure at the pump outlet of about 60 psi.). The installation includes the pump, wiring, pipeline in the well, solar panels, frame mounts, inverter, and all appurtenances. Water will be pumped to an existing storage tank at a higher elevation from which it will be used to pressurize the Livestock Pipeline (516) or Irrigation Pipeline (430). Grazing - Livestock exclusion from surface water will result in improved surface water quality and reduced erosion. Grazing has potential to be well distributed. Irrigation: Improved pressure and flow rate will improve irrigation efficiency.

533 - Photovoltaic-Powered Pump 200 - 400 ft TDH

Unit Type = Ea

Payment Rate, \$4872.69, HU \$5847.23

Description: Installation of a submersible solar-powered pump in a well or a live stream. The installation includes the pump, wiring, drop pipe, solar panels, mounts, inverter, and all appurtenances. Note: It is generally not advisable to use a storage battery for a number of reasons. A storage tank is generally the most efficient method to store energy.

Before Situation: Livestock: Inadequate supply or location of water for a prescribed grazing system. Eroded stream banks and degraded water quality due to livestock access to stream. Cattle are not well-distributed because of remote water location.

Irrigation: Pressure and flow rate is insufficient for uniform irrigation.

After Situation: The typical scenario assumes installation of approximately 500 watts of photovoltaic (PV) panels, capable of operating a 1/2 Hp (0.5 Hp) solar-powered submersible pump in a well or other water source (Notes: 1) A PV panel is rated under standard and ideal conditions which will most likely not be replicated in the field; 2) 1 Hp is defined as 746 watts; 3) It is reasonable to expect a 1/4 Hp solar-powered submersible pump to deliver about 1.5 gpm and develop a pressure at the pump outlet of about 60 psi.). The installation includes the pump, wiring, pipeline in the well, solar panels, frame mounts, inverter, and all appurtenances. Water will be pumped to an existing storage tank at a higher elevation from which it will be used to pressurize the Livestock Pipeline (516) or Irrigation Pipeline (430). Grazing - Livestock exclusion from surface water will result in improved surface water quality and reduced erosion. Grazing has potential to be well distributed. Irrigation: Improved pressure and flow rate will improve irrigation efficiency.

533 - Photovoltaic-Powered Pump >400 ft TDH

Unit Type = Ea

Payment Rate, \$7856.05, HU \$9427.26

Description: Installation of a submersible solar-powered pump in a well or a live stream. The installation includes the pump, wiring, drop pipe, solar panels, mounts, inverter, and all appurtenances. Note: It is generally not advisable to use a storage battery for a number of reasons. A storage tank is generally the most efficient method to store energy.

Before Situation: Livestock: Inadequate supply or location of water for a prescribed grazing system. Eroded stream banks and degraded water quality due to livestock access to stream. Cattle are not well-distributed because of remote water location. Irrigation: Pressure and flow rate is insufficient for uniform irrigation.

After Situation: The typical scenario assumes installation of approximately 1000 watts of photovoltaic (PV) panels, capable of operating a 3/4 Hp (0.75 Hp) solar-powered submersible pump in a well or other water source (Notes: 1) A PV panel is rated under standard and ideal conditions which will most likely not be replicated in the field; 2) 1 Hp is defined as 746 watts; 3) It is reasonable to expect a 1/4 Hp solar-powered submersible pump to deliver about 1.5 gpm and develop a pressure at the pump outlet of about 60 psi.). The installation includes the pump, wiring, pipeline in the well, solar panels, frame mounts, inverter, and all appurtenances. Water will be pumped to an existing storage tank at a higher elevation from which it will be used to pressurize the Livestock Pipeline (516) or Irrigation Pipeline (430). Grazing - Livestock exclusion from surface water will result in improved surface water quality and reduced erosion. Grazing has potential to be well distributed. Irrigation: Improved pressure and flow rate will improve irrigation efficiency.

533 - Water Ram Pump

Unit Type = Ea

Payment Rate, \$1548.91, HU \$1858.69

Description: A water ram is used to transfer water from a live stream to a Watering Facility or small Irrigation Reservoir utilizing the energy of moving water to transfer a portion of that water to a higher elevation. It is anchored to a small concrete pad. Bypass water is returned to the stream or transferred in a pipe, to a lower elevation tank, without erosion or impairment to water quality. The objective is to provide water to the cattle outside of a live stream or other natural water source thereby eliminating a significant erosion situation while also improving water quality. The cattle thus have access to drinking water without having to enter the stream. The water ram may need to be fenced for protection from curious bovines.

Before Situation: Water in a nearby stream is not available at the desired location, pressure and/or flow rate.

After Situation: A 2" diameter inlet pipe is installed and connected to a water ram pump with all appurtenances and anchored to a concrete pad (9 ft x 4 ft x 5 in) or other appropriate secure base. Depending upon the application, either a 1-inch diameter Livestock Pipeline (516) or an Irrigation Pipeline (430) is installed from the water ram to a 5,000 gallon storage facility. Improved water quantity or quality, grazing management, plant diversity, animal health, and/or irrigation purposes as outlined in the appropriate NRCS irrigation system standard. A 2" water ram, with 10 gpm of inlet flow and 10 feet of drop, can supply about 1.0 gpm to a location about 50 feet higher than the water ram.

533 - Livestock Nose Pump

Unit Type = Ea

Payment Rate, \$860.36, HU \$1032.43

Description: A Nose Pump is a diaphragm pump located in a pasture for the purpose of providing water to cattle. For a permanent installation, it is typical to also install Heavy Use Area Protection (561) (separate contract item) where the cattle congregate around the pump. It is powered and operated by cattle to transfer water from a stream to a drinking bowl. The objective is to provide water to the cattle outside of a live stream or other natural water source thereby eliminating a significant erosion situation and while also improving water quality. The cattle thus have access to drinking water without having to enter the stream.

Before Situation: Livestock have open access to a live stream or other existing natural water supply. Water supply is contaminated due to animal activity and stream banks are eroded on a daily basis. Improper cattle distribution results in poor water quality, poor grazing distribution, over grazing, and soil erosion.

After Situation: One nose pump is installed with all appurtenances anchored to concrete pad with 6"x6"x10 Gauge reinforcement wire (9 ft x 4 ft x 5 in) or other appropriate secure base to supply water to cattle for improved livestock herd management. Additional Heavy Use Area Protection (561) in the form of crushed rock and at least 5 feet wide, may be installed (separate contract item) surrounding the concrete pad. Improved: water quality, soil quality, grazing management, plant diversity, and animal health.

548 – Grazing Land Mechanical Treatment

548 - Mechanical less than 5 percent slope

Unit Type = Ac

Payment Rate, \$29.12, HU \$34.95

Description: Using heavy modified plow or combinations of equipment that modifies physical soil layer or plant conditions on rangelands.

Before Situation: Desired Ecological plant community is limited by a plant or soil layer that physically restricts change over a threshold.

After Situation: Desired Ecological plant community has changed by overcoming the threshold or the seeded vegetation establishes and sustains its function and ecological processes for the life of the practice.

548 - Pastureland Mech Treatment

Unit Type = Ac

Payment Rate, \$15.19, HU \$18.23

Description: This also applies to organic operations as well. Chisel plowing or subsoiling will be used to break the restrictive layers that will increase water infiltration, break up sod and thatch on introduced forages. Depth of treatment will be 1" deeper than the restrictive layer.

Before Situation: Forage growth on pastureland is limited by compacted soils layers and /or dense sod with a thatch build up.

After Situation: Forage growth is increased due to greater rooting depths and water infiltration.

548 - mechanical more than 5 percent slope

Unit Type = Ac

Payment Rate, \$29.28, HU \$35.14

Description: On the contour, using mechanical equipment or combinations of equipment that modifies physical soil layer or plant conditions on rangeland.

Before Situation: Desired Ecological plant community is limited by a plant or soil layer that physically restricts change over a threshold.

After Situation: Desired Ecological plant community has changed by overcoming the threshold or the seeded vegetation establishes and sustains its function and ecological processes for the life of the practice and geomorphology of the site.

550 – Range Planting**550 - Native -Aerial**

Unit Type = Ac

Payment Rate, \$124.55, HU \$149.45

Description: Establishment of a mixture of PREDOMINANTLY NATIVE adapted perennial species on a rangeland unit to improve forage condition, improve wildlife habitat and/or reduce erosion. Seed mix of Predominantly Native species is chosen based on range conditions and availability of seed. Planting by aerial broadcasting.

Before Situation: Rangeland with existing stand of perennial or annual grasses OR monoculture OR no grasses present where natural reseeding or vegetation enhancement by grazing management alone is unlikely.

After Situation: Establishment of PREDOMINANTLY NATIVE adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees to improve forage quality and quantity and reduce soil erosion on rangeland, native or naturalized pasture, grazed forest or other suitable location.

550 - Native -Standard prep

Unit Type = Ac

Payment Rate, \$140.24, HU \$168.28

Description: Establishment of a mixture of PREDOMINANTLY NATIVE adapted perennial species on a rangeland unit to improve forage condition, improve wildlife habitat and/or reduce erosion. Seed mix of Predominantly Native species is chosen based on range conditions and availability of seed. Planting by preparing a seedbed with a LIGHT TO MODERATE TILLAGE and seeding with a no-till drill, range drill, or broadcasting.

Before Situation: Rangeland with existing stand of perennial or annual grasses OR monoculture OR no grasses present where natural reseeding or vegetation enhancement by grazing management alone is unlikely.

After Situation: Establishment of PREDOMINANTLY NATIVE adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees to improve forage quality and quantity and reduce soil erosion on rangeland, native or naturalized pasture, grazed forest or other suitable location.

550 - Native -Heavy

Unit Type = Ac

Payment Rate, \$151.38, HU \$181.66

Description: Establishment of a mixture of PREDOMINANTLY NATIVE adapted perennial species on a rangeland unit to improve forage condition, improve wildlife habitat and/or reduce erosion. Seed mix of Predominantly Native species is chosen based on range conditions and availability of seed. Planting by preparing a seedbed with MODERATE TO HEAVY TILLAGE (ex: ripping & heavy disk) and seeding with a no-till drill, range drill, or broadcasting.

Before Situation: Rangeland with existing stand of perennial or annual grasses OR monoculture OR no grasses present where natural reseeding or vegetation enhancement by grazing management alone is unlikely. Existing conditions often require complete suppression or eradication of existing vegetation to ensure success of planting.

After Situation: Establishment of PREDOMINANTLY NATIVE adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees to improve forage quality and quantity and reduce soil erosion on rangeland, native or naturalized pasture, grazed forest or other suitable location.

550 - Native -Wildlife or Pollinator

Unit Type = Ac

Payment Rate, \$183.78, HU \$220.54

Description: Establishment of a mixture of PREDOMINANTLY NATIVE adapted perennial species on a rangeland unit to improve wildlife habitat, benefit pollinators & beneficial insects, improve forage condition, and/or reduce erosion. Seed mix of PREDOMINANTLY NATIVE SPECIES IS CHOSEN TO SPECIFICALLY BENEFIT WILDLIFE (ex: big game spp, Sage grouse, Lesser Prairie Chicken, others) or POLLINATORS (ex: inclusion of 5-10 forb species) based on range conditions and availability of seed. FOR POLLINATOR HABITAT: Consideration is given to selecting plants that bloom sequentially throughout the growing season where feasible. Planting by preparing a seedbed with MODERATE TO HEAVY TILLAGE (ex: ripping & heavy disk) and seeding with a no-till drill, range drill, or broadcasting.

Before Situation: Rangeland with existing stand of perennial or annual grasses OR monoculture OR no grasses present where natural reseeding or vegetation enhancement by grazing management alone is unlikely. Existing conditions often require complete removal, suppression, or eradication of existing vegetation to ensure success of planting.

After Situation: Establishment of PREDOMINANTLY NATIVE adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees with an emphasis on species beneficial to wildlife or Pollinators on rangeland, native or naturalized pasture, grazed forest or other suitable location. For Pollinator habitat: Plants that bloom sequentially throughout the growing season are established, where feasible.

550 - Pollinator - small acreage

Unit Type = Ac

Payment Rate, \$352.64, HU \$423.17

Description: Establishment of a mixture of PREDOMINANTLY NATIVE adapted perennial species on a rangeland unit to benefit pollinators, beneficial insects, and may provide food and cover resources for other wildlife species. Seed mix of Predominantly Native species is chosen TO SPECIFICALLY BENEFIT POLLINATORS (ex: inclusion of 5-10 forb species) based on range conditions and availability of seed. Consideration is given to selecting plants that bloom sequentially throughout the growing season where feasible. Planting by preparing a seedbed with MODERATE TO HEAVY TILLAGE (ex: ripping & heavy disk) and seeding with a no-till drill, range drill, or broadcasting.

Before Situation: Rangeland with existing stand of perennial or annual grasses OR monoculture OR no grasses present where natural reseeding or vegetation enhancement by grazing management alone is unlikely. Existing conditions often require complete removal, suppression, or eradication of existing vegetation to ensure success of planting.

After Situation: Establishment of PREDOMINANTLY NATIVE adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees with an emphasis on species beneficial to Pollinators & beneficial insects on rangeland, native or naturalized pasture, grazed forest or other suitable location. Plants that bloom sequentially throughout the growing season are established, where feasible.

560 – Access Road**560 - New earth road in dry, level terrain.**

Unit Type = Ft

Payment Rate, \$7.72, HU \$9.26

Description: Newly constructed compacted earth road in relatively level terrain and dry areas. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of relatively dry and level terrain lands.

After Situation: The road will be 14 feet wide at the top, mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - New 6 inch gravel road in wet, level terrain

Unit Type = Ft

Payment Rate, \$15.33, HU \$18.4

Description: Newly Constructed gravel road with min. 6 inch thick compacted gravel surface in relatively level ground in wet areas. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of relatively wet and swampy but level terrain lands.

After Situation: The road will be 14 feet wide with 6 inch gravel surfacing at the top. It is mostly in embankment less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - Rehabilitation of existing earth road in dry, level terrain

Unit Type = Ft

Payment Rate, \$1.92, HU \$2.3

Description: Repair and rehabilitation of compacted earth road in existing alignment in dry, level terrain. The extent of construction work over an existing alignment is assumed to average 20% of the work for a new installation. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition, it will result in continued compaction, excessive sediment in surface water and emissions of fugitive dusts. This scenario is applicable where the resource activity areas with an existing but dilapidated access road consist of relatively dry and level terrain lands.

After Situation: The damaged portions of the road will be repaired to a full 14 feet width at the top, mostly in embankment less than 3 feet in height, (average 2 ft), typical side slopes 2:1. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - Rehabilitation of existing gravel road in wet, level terrain

Unit Type = Ft

Payment Rate, \$3.42, HU \$4.1

Description: Repair and rehabilitation of gravel road with min. 6 inch thick compacted gravel surface on existing alignment in wet, level terrain. The extent of construction work over an existing alignment is assumed to average 20% of the work for a new installation. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition, it will result in continued compaction, excessive sediment in surface water and emissions of fugitive dusts. This scenario is applicable where the resource activity areas with an existing but dilapidated access road consist of relatively wet and swampy but level terrain lands.

After Situation: The damaged portions of the road will be repaired to a full 14 feet width with a 6" gravel surface at the top, mostly in embankment less than 3 feet in height, (average 2 ft), typical side slopes 2:1. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - New earth road in dry, sloped terrain

Unit Type = Ft

Payment Rate, \$5.38, HU \$6.45

Description: Newly constructed compacted earth road in steep sloped terrain but relatively dry areas. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of relatively dry lands with steep slopes.

After Situation: The road will be 14 feet wide at the top, 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft) typical cut and fill side slopes 2:1. Out of total excavation, 80% is considered common earth and 20% hard dig or rocks. A properly constructed, well defined access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - New 6 inch gravel road in wet, sloped terrain

Unit Type = Ft

Payment Rate, \$12.98, HU \$15.58

Description: Newly Constructed gravel road with min. 6 inch thick compacted gravel surface in steep sloped ground in wet areas. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of wet and swampy land areas with steep sloped terrain.

After Situation: The road will be 14 feet wide with 6 inch gravel surfacing at the top. It is 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - Rehabilitation of existing earth road in wet, sloped terrain

Unit Type = Ft

Payment Rate, \$1.43, HU \$1.72

Description: Repair and rehabilitation of compacted earth road in existing alignment in relatively dry but steep sloped terrain. The extent of construction work over an existing alignment is assumed to average 20% of the work for a new installation. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition, it will result in continued compaction, excessive sediment in surface water and emissions of fugitive dusts. This scenario is applicable where the resource activity areas with an existing but dilapidated access road consist of relatively dry lands with steep sloped terrain.

After Situation: The damaged portions of the road will be repaired to a full 14 feet width at the top, 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft), typical side slopes 2:1. Out of total excavation, 80% is considered common earth excavation and 20% hard dig or rocks. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

560 - Rehabilitation of existing gravel road in wet, sloped terrain

Unit Type = Ft

Payment Rate, \$2.96, HU \$3.55

Description: Repair and rehabilitation of gravel road with min. 6 inch thick compacted gravel surface on existing alignment in wet, steep sloped terrain. The extent of construction work over an existing alignment is assumed to average 20% of the work for a new installation. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Includes excavation, shaping, grading, surface material, vegetation of disturbed areas and all equipment, labor and incidental materials necessary to install the practice.

Before Situation: An agricultural enterprise with an existing access road which is beyond its useful lifespan, can no longer be used as intended without rehabilitation. If left in its current condition, it will result in continued compaction, excessive sediment in surface water and emissions of fugitive dust. This scenario is applicable where the resource activity areas with an existing but dilapidated access road consist of relatively wet and swampy land with steep sloped terrain.

After Situation: The damaged portions of the road will be repaired to a full 14 feet width with a 6" gravel surface at the top, 50% in embankment and 50% in excavation less than 3 feet in height, (average 2 ft), typical side slopes 2:1. A properly repaired access road will greatly reduce or eliminate compaction in land use areas where it is harmful, reduce emissions of fugitive dust and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport and improving drainage of irrigated lands. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). All seeding or Revegetation of disturbed areas is provided according to Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).

561 – Heavy Use Protection Area**561 - Reinforced Concrete with sand or gravel foundation**

Unit Type = Sq Ft

Payment Rate, \$1.77, HU \$2.12

Description: The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with reinforced concrete on a sand or gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas, and labor to install this practice,

Before Situation: This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation: The stabilized area is surfaced with approximately 630 square feet of approximately 8 cubic yards of welded wire mesh reinforced concrete with 8 cubic yards of sand or gravel foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or Revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

561 - Rock/Gravel on Geotextile

Unit Type = Sq Ft

Payment Rate, \$0.85, HU \$1.02

Description: The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with rock and or gravel on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice,

Before Situation: This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation: The stabilized area is surfaced with approximately 630 square feet of rock and or gravel on approximately 70 square yards of geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or Revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

561 - Rock/Gravel-GeoCell-Geotextile

Unit Type = Sq Ft

Payment Rate, \$2.77, HU \$3.32

Description: The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with rock and or gravel in a cellular containment grid on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice.

Before Situation: This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation: The stabilized area is surfaced with approximately 630 square feet of rock and or gravel in approximately 70 square yards of cellular containment grid on approximately 70 square yards of geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or Revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

561 - Fly Ash on Geotextile

Unit Type = Sq Ft

Payment Rate, \$1.46, HU \$1.75

Description: The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with Fly Ash on a geotextile fabric foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice.

Before Situation: This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation: The stabilized area is surfaced with approximately 630 square feet of Fly Ash on approximately 70 square yards of geotextile fabric foundation material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or Revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

561 - Bituminous Concrete Pavement

Unit Type = Sq Ft

Payment Rate, \$2.17, HU \$2.6

Description: The stabilization of areas around facilities that are frequently and intensively used by people, animals or vehicles by surfacing with bituminous concrete pavement on aggregate gravel foundation to provide a stable, non-eroding surface. Installation includes all materials, equipment, vegetation of disturbed areas and labor to install this practice.

Before Situation: This practice applies to all land uses where frequently and/or intensively used areas require treatment to address soil erosion and water quality degradation.

After Situation: The stabilized area is surfaced with approximately 630 square feet of bituminous concrete pavement on 8 cubic yards of aggregate gravel material for surfacing areas around facilities that are frequently and intensively used by people, animals or vehicles and will address soil erosion and water quality degradation. All seeding or Revegetation of disturbed areas is provided. All needed roads must use Access Road (560). Any needed treatment of stream crossings must use Stream Crossing (578). Provisions to collect, store, utilize, and or treat contaminated runoff must use Sediment Basin (350), Waste Storage Facility (313), or Waste Treatment (629) as appropriate. To reduce the potential for air quality problems from particulate matter associated with heavy use areas, consider the use of Windbreak/Shelterbelt Establishment (380) or Herbaceous Wind Barriers (603).

574 – Spring Development

574 - Spring Development

Unit Type = Ea

Payment Rate, \$2727.49, HU \$3272.99

Description: Develop a water source from a natural spring or seep (i.e., spring development) to provide water for livestock and/or wildlife needs. The collection system is commonly composed of a single or a network of perforated 4 inch diameter drainage pipe placed in an excavated collection trench that runs across the slope. The outflow pipe from the spring box can be directed to buried large storage (not included), and to a watering facility (not included) for use

Before Situation: Livestock operation with inadequate fresh water for livestock and an on-site undeveloped spring/seep.

After Situation: Spring development system provides adequate water for the intended use. The system typically runs all year long in most zones.

574 - Spring Development - Remote Locations

Unit Type = Ea

Payment Rate, \$3190.99, HU \$3829.19

Description: Develop a water source from a natural spring or seep (i.e., spring development) to provide water for livestock and/or wildlife needs in remote areas 50 or more miles from source of equipment and/or materials. The collection system is commonly composed of a single or a network of perforated 4 inch diameter drainage pipe placed in an excavated collection trench that runs across the slope. The outflow pipe from the spring box can be directed to buried large storage (not included), and to a watering facility (not included) for use

Before Situation: Livestock operation with inadequate fresh water for livestock and an on-site undeveloped spring/seep.

After Situation: Spring development system provides adequate water for the intended use. The system typically runs all year long in most zones.

580 – Streambank and Shoreline Protection

580 - Vegetative

Unit Type = Ln Ft

Payment Rate, \$12.72, HU \$15.26

Description: Protection of streambank consisting of conventional plantings of vegetation to stabilize and protect against scour and erosion.

The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Includes shaping bank, critical area vegetation and erosion control fabric.

Before Situation: A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has marginally degraded stream banks that are unstable and show signs of active erosion.

After Situation: The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream.

580 - Bioengineered

Unit Type = Ln Ft

Payment Rate, \$33.14, HU \$39.77

Description: Protection of streambanks consisting of a bioengineered technique comprised of non-structural measures such as earth revetments and benches with vegetative measures to stabilize and protect the streambank against scour and erosion. Soil bioengineering is a system of living plant materials used as structural components. Adapted types of woody vegetation (shrubs and trees) are initially installed in specified configurations that offer immediate soil protection and reinforcement. In addition, soil bioengineering systems create resistance to sliding or shear displacement in a streambank as they develop roots or fibrous inclusions. Environmental benefits derived from woody vegetation include diverse and productive riparian habitats, shade, organic additions to the stream, cover for fish, and improvements in aesthetic value and water quality. Under certain conditions, soil bioengineering installations work well in conjunction with structures to provide more permanent protection and healthy function, enhance aesthetics, and create a more environmentally acceptable product. Soil bioengineering systems normally use uprooted plant parts in the form of cut branches and rooted plants. For streambanks, living systems include brush mattresses, live stakes, joint plantings, vegetated geogrids, branch packing, and live fascines.

The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Includes shaping bank, critical area vegetation, livestock, root wads and revetments.

Before Situation: A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has moderately degraded stream banks that are unstable and show signs of active erosion.

After Situation: The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream.

580 - Structural

Unit Type = Ln Ft

Payment Rate, \$102.11, HU \$122.54

Description: Protection of streambanks using structural measures such as riprap, concrete block, gabions, etc. to stabilize and protect banks of streams or excavated channels against scour and erosion. Additional structural measures may also include tree revetments; log, root wad and boulder revetments; dormant post plantings; piling revetments with wire or geotextile fencing; piling revetments with slotted fencing; jacks or jack fields; rock riprap; stream jetties; stream barbs; and gabions. The purpose of this practice is to maintain, improve, or restore physical, chemical, and biological functions of a stream to provide diverse aquatic communities to improve habitat for desired aquatic species. Includes shaping bank, critical area vegetation, geotextile, and rock rip rap. The rock toe will be 3' thick and 5' high. The bank above the riprap will be graded to a stable slope and revegetated.

Before Situation: A stream bisects the agricultural property and has had all of the woody vegetation removed due to overgrazing or human manipulation; the stream has severely degraded stream banks that are unstable and show signs of active erosion.

After Situation: The streambank is stable against further erosion and encourages natural sediment transport and deposition. Loss of riparian areas and sediment load is reduced in the stream.

584 – Channel Bed Stabilization

584 - Bio-engineering

Unit Type = Sq Ft

Payment Rate, \$2.73, HU \$3.28

Description: Stabilize the bottom and slope of a stream channel using bioengineering methods. Bio-engineering methods include live stakes, fascines, plantings, bare root stock, willow waddles, and live stakes. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting. Planting entire area at a 2x2 grid with live stakes, potted plants, and bare root mix

Before Situation: Bed of an existing or newly constructed alluvial or threshold channel is undergoing damaging aggradation or degradation. Stream cannot be feasibly controlled with clearing and snagging, vegetation, bank protection or upstream water control.

After Situation: Stream channel is stable and vegetated.

584 - Rock structures

Unit Type = Cu Yd

Payment Rate, \$50.21, HU \$60.26

Description: Stabilize the bottom and slope of a stream channel using rock riprap or engineered products that consist primarily of rock or concrete. This includes but not limited to gabions, rock weirs, rock weirs, concrete blocks, etc. Based on degrading channel that needs to be riprapped its entire wetted perimeter.

Before Situation: Bed of an existing or newly constructed alluvial or threshold channel is undergoing damaging aggradation or degradation. Changes cannot be controlled feasibly with clearing and snagging, vegetation, bank protection or upstream water control.

After Situation: Stream channel is stable. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting.

584 - Wood structures

Unit Type = Ea

Payment Rate, \$1863.64, HU \$2236.37

Description: Stabilize the bottom and slope of a stream channel using engineered structures consisting primarily of wood. This includes but not limited to toe wood, log weirs, log vanes, root wads, log step pools, etc. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting.

Before Situation: Bed of an existing or newly constructed alluvial or threshold channel is undergoing damaging aggradation or degradation. Changes cannot be controlled feasibly with clearing and snagging, vegetation, bank protection or upstream water control.

After Situation: Stream channel is stable. Re-vegetation of exposed surfaces will be completed using 342 - Critical Area Planting.

587 – Structure for Water Control**587 - Inlet Flashboard Riser, Metal**

Unit Type = In-Ft

Payment Rate, \$2.58, HU \$3.1

Description: A Flashboard Riser fabricated of metal and used in a water management system that maintains a desired water surface elevation, controls the direction or rate of flow, or conveys water. The water surface elevation is controlled by addition or removal of slats or "stoplogs". This scenario is applicable to variable crest weir structures where the elevation is controlled at the inlet (Half-Rounds). They are often fabricated from half pipes (i.e. half-rounds) or sheet steel in a box shape. Payment rate is based upon the Flashboard Weir Length in inches multiplied by the outlet length in feet (Inch-Foot).

Before Situation: The operator presently flood irrigates his field and has no means to accurately maintain a constant water level at varying elevations resulting in a lack of flexibility, and inefficient use of water and energy during pumping. The operator also desires to maintain a permanent pool for water fowl during the winter.

After Situation: The operator has the capability to more efficiently control and maintain a range of water surface elevations thereby reducing the flow rate needed. Less water is wasted and both water and energy is conserved. The operator is now able to maintain adequate water during the winter as a benefit to waterfowl. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

587 - Inline Flashboard Riser, Metal

Unit Type = In-Ft

Payment Rate, \$2.73, HU \$3.28

Description: A Flashboard Riser fabricated of metal and used in a water management system that maintains a desired water surface elevation, controls the direction or rate of flow, or conveys water. The water surface elevation is controlled by addition or removal of slats or "stoplogs". This scenario is applicable to variable crest weir structures where the elevation is controlled at the embankment. They are often fabricated from vertical pipes with the stoplogs are located in the middle (i.e. Full-Rounds) or sheet steel in a box shape. Payment rate is based upon the Flashboard Weir Length in inches multiplied by the outlet length in feet (Inch-Foot).

Before Situation: The operator presently flood irrigates his field and has no means to accurately maintain a constant water level at varying elevations resulting in a lack of flexibility, and inefficient use of water and energy during pumping. The operator also desires to maintain a permanent pool for water fowl during the winter.

After Situation: The operator has the capability to more efficiently control and maintain a range of water surface elevations thereby reducing the flow rate needed. Less water is wasted and both water and energy is conserved. The operator is now able to maintain adequate water during the winter as a benefit to waterfowl. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

587 - Commercial Inline Flashboard Riser

Unit Type = Ea

Payment Rate, \$3980.4, HU \$4776.48

Description: An Inline Water Control Structure (WCS) composed of plastic that maintains a desired water surface elevation, controls the direction or rate of flow, or conveys water. The water surface elevation is controlled by addition or removal of slats or "stoplogs". This scenario is applicable to variable crest weir structures where the elevation is controlled at point along a pipe extending through an embankment, providing ease of access to the structure and provide better protection against beaver activity. There are commercially available models composed of plastic that are commonly used when the width is 24" or less.

Before Situation: The landowner wishes to provide for a way to control the water surface elevation in a wetland area. The landowner wishes to enhance and enlarge the area to provide habitat for fish and wildlife.

After Situation: A WCS is installed in a flow line allowing shallow water impoundments. A wetland area is enhanced and water levels can be varied to better accommodate wildlife needs. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

587 - Culvert <30 inches HDPE

Unit Type = In-Ft

Payment Rate, \$1.54, HU \$1.85

Description: Install a new HDPE culvert under 30 inches in diameter to convey water under roads or other barriers. Work includes site preparation, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and riprap protection of side slopes. Use (396) Aquatic Organism Passage when the primary intent is biological concerns, not hydrologic. Use (578) Stream Crossing for culverts \geq 30 inches or perennial flow.

Before Situation: Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

After Situation: Water is conveyed in a controlled manner.

587 - Culvert <30 inches CMP

Unit Type = In-Ft

Payment Rate, \$1.73, HU \$2.07

Description: Install a new Corrugated Metal Pipe (CMP) culvert under 30 inches in diameter to convey water under roads or other barriers. Work includes site preparation, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and riprap protection of side slopes. Use (396) Aquatic Organism Passage when the primary intent is biological concerns, not hydrologic. Use (578) Stream Crossing instead for culverts \geq 30 inches or perennial flow.

Before Situation: Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

After Situation: Water is conveyed in a controlled manner

587 - Slide Gate

Unit Type = In

Payment Rate, \$8.87, HU \$10.64

Description: This scenario is the installation of a permanent slide gate structure to control the conveyance of water. The slide gate may be installed on an open channel or pipeline. The slide gate is made of steel and has a hand operated mechanical lifting system.

Before Situation: A channel or pipeline is in need of a head gate to control the flow of water.

After Situation: A 10" hand operated slide gate is installed.

587 - Rock Checks for Water Surface Profile

Unit Type = Ton

Payment Rate, \$57.78, HU \$69.34

Description: Installation consists of installing a cross vane shaped rock structures with points facing upstream for the purpose of raising the water surface profile, stabilizing the stream bed, or creating fish habitat, and, or installing rock structures along the banks to provide bank stability and/or fish habitat. The check dams are underlain with geotextile fabric. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The stream presently is incised with near vertical banks caused by bank toe erosion and sloughing. This condition has caused the floodplains to be disconnected from the stream, with only floods well above normal high-water escaping the high banks of the stream.

After Situation: Banks are stabilized, and pools are created raising the Water Surface Profile elevation and effectively reducing the slope. Riffle pool scheme is restored and banks are protected. Water quality is protected downstream due to erosion protection, and wetland features are restored in the floodplain. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

587 - Screw - Flap Gate

Unit Type = In

Payment Rate, \$49.48, HU \$59.37

Description: Installation of a water tight screw gate to control water involving a variety of water control structures. Includes all labor and materials needed to install gate onto a pipe or water control structure.

Before Situation: Water needs to be controlled in a more desirable manner. The gate will be installed to control water flow for irrigation systems.

After Situation: The gates will play an integral role in application of more efficient irrigation water delivery and on farm systems.

587 - HDPE Turnout

Unit Type = Ea

Payment Rate, \$476.46, HU \$571.75

Description: A HDPE pipe equipped with a slide gate diverts water from a ditch or canal into a field or field ditch.

Before Situation: A ditch or canal exists, but a means to move water from the ditch into a smaller ditch or field does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation: Water is diverted from a canal or ditch to meet irrigation requirements. A 15 inch diameter HDPE pipe is installed through the canal containment dike. A 15 inch diameter slide gate is attached to the upstream end of the pipe. The top of the pipe inlet is below canal water surface elevation.

587 - CMP Turnout

Unit Type = Ea

Payment Rate, \$521.54, HU \$625.84

Description: A corrugated metal pipe (CMP) equipped with a slide gate diverts water from a ditch or canal into a field or field ditch.

Before Situation: A ditch or canal exists, but a means to move water from the ditch into a smaller ditch or field does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation: Water is diverted from a canal or ditch to meet irrigation requirements. A 15 inch diameter CMP is installed through the canal containment dike. A 15 inch diameter slide gate is attached to the upstream end of the pipe. The top of the pipe inlet is below canal water surface elevation.

587 - Concrete Irrigation Structure

Unit Type = Cu Yd

Payment Rate, \$593.25, HU \$711.9

Description: A reinforced concrete structure designed to measure, divide, deliver and/or control water level efficiently.

Before Situation: Current water control structure is either non-existent, inefficient or not controlling water in an efficient or desired manner. A water supply of sufficient quantity and quality is available for the desired use.

After Situation: Water is controlled efficiently for desired use. All footings, floors, and walls have a minimum thickness of six inches.

587 - Concrete Turnout Structure - Small

Unit Type = Ea

Payment Rate, \$1948.99, HU \$2338.79

Description: A reinforced concrete turnout structure equipped with slide boards or panels diverts irrigation water from a ditch or canal into a field, field ditch, or irrigation pipeline.

Before Situation: A ditch or canal exists, but a means to move water from the ditch into a smaller ditch or field does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation: Water is diverted from a canal or ditch to meet irrigation requirements. A 4 foot wide and 5 foot tall turnout structure equipped with slots for slide boards and panels, and a trash screen/rack conducts water through the canal berm into a field. The concrete structure is 10 feet long and has a water measuring device. All footings, floors, and walls have a minimum thickness of six inches. The structure delivers water to field elevation or ditch bottom elevation. The top of the pipe inlet is below canal water surface elevation.

587 - Concrete Turnout Structure - high flow

Unit Type = Ea

Payment Rate, \$3741.95, HU \$4490.33

Description: A reinforced concrete turnout structure equipped with slide boards or panels diverts irrigation water from a ditch or canal into a field, field ditch, or irrigation pipeline.

Before Situation: A ditch or canal exists, but a means to move water from the ditch into a smaller ditch or field does not exist. A water supply of sufficient quantity and quality is available for irrigation.

After Situation: Water is diverted from a canal or ditch to meet irrigation requirements. A 15 foot wide and 5 foot tall turnout structure equipped with jack gates, and a concrete block energy dissipater as part of the apron. The concrete structure is 10 feet long and has a water measuring device. All footings, floors, and walls have a minimum thickness of six inches. The structure delivers water to field elevation or ditch bottom elevation. The top of the pipe inlet is below canal water surface elevation.

587 - Flow Meter with Mechanical Index

Unit Type = In

Payment Rate, \$144.22, HU \$173.06

Description: Permanently installed water flow meter with mechanical, cumulative volume and rate index. Meters can be any flow measurement device that meets CPS 433, (i.e. meters: turbine, propeller, acoustic, magnetic, venturi, orifice, etc.) with or without straightening vanes.

Before Situation: Producer estimates seasonal and individual irrigation application flow rate and volumes based on energy costs, system operating pressure, or other means.

After Situation: Producer is able to access instantaneous rate and cumulative flow volume data at the meter location. The information gained will enable the irrigator to improve irrigation water management, recognize system performance issues before they become critical, and reduce energy use.

587 - Flow Meter with Electronic Index

Unit Type = In

Payment Rate, \$274.4, HU \$329.27

Description: Permanently installed water flow meter with an electronic index. Meters can be any flow measurement device that meets CPS 433, (i.e., meters: turbine, propeller, acoustic, magnetic, venturi, orifice, etc.) with or without straightening vanes or data logging capability. Meter nominal diameter for insert type turbine meters will be installation pipe size. Installation would include installation of a turbine flow meter, with electronic index output.

Before Situation: Producer estimates seasonal and individual irrigation application flow rate and volumes based on energy costs, system operating pressure, or other means.

After Situation: Producer is able to access instantaneous rate and cumulative flow volume data at the meter location. The information gained will enable the irrigator to improve irrigation water management, recognize system performance issues before they become critical, and reduce energy use.

587 - Steel Fabrication

Unit Type = Lb

Payment Rate, \$2.5, HU \$3

Description: Fabricating steel into water controls structures, weir plates, trash racks, measuring flumes etc.

Before Situation: Current water control structures are either non-existent, inefficient or not controlling water in an efficient or desired manner. A water supply of sufficient quantity and quality is available for the desired use.

After Situation: Water is measured and controlled efficiently for desired use.

587 - Cleaning Screens

Unit Type = Lb

Payment Rate, \$7.45, HU \$8.94

Description: Clean trash, debris and sediment from water to be used for irrigation.

Before Situation: Dirty water inhibits desired use of water in various irrigation systems.

After Situation: Water is cleaned and enables design and application of high efficiency irrigation systems.

587 - Sheet Piling Structure

Unit Type = Sq Ft

Payment Rate, \$28.34, HU \$34.01

Description: Construction of a sheet piling structure to divert or control water in streams and other water courses.

Before Situation: Unable to divert water from a water course into irrigation system.

After Situation: Able to consistently divert desired amount of water into irrigation system.

587 - Surge Valve

Unit Type = Ea

Payment Rate, \$1641.88, HU \$1970.25

Description: The use of surge valves with controllers to efficiently apply water to cropland.

Before Situation: In-efficient or less efficient irrigation system in place before surge system applied./

After Situation: Irrigation efficiency and uniformity is improved.

587 - Flow Meter with Electronic Index & Telemetry

Unit Type = In

Payment Rate, \$349.85, HU \$419.82

Description: Permanently installed water flow meter with an electronic flow rate and volume index and data telemetry transmission system. Meters can be any flow measurement device that meets CPS 433, (i.e. meters: turbine, propeller, acoustic, magnetic, venturi, orifice, etc.) with or without straightening vanes. Meter nominal diameter for insert type turbine meters will be installation pipe size. Installation would include installation of a magnetic flow meter, with electronic index output and telemetry data transfer system for monitoring irrigation system flow rate

Before Situation: Producer estimates seasonal and individual irrigation application flow rate and volumes based on energy costs, system operating pressure, or other means.

After Situation: Producer is able to access instantaneous rate and cumulative flow volume data from a personal computer or cell phone at any time. The information gained will enable the irrigator to improve irrigation water management, recognize system performance issues before they become critical, and reduce energy use.

587 - Wood irrigation Structures

Unit Type = Sq Ft

Payment Rate, \$3.34, HU \$4.01

Description: Constructing treated or red wood water controls structures.

Before Situation: Current water control structures are either non-existent, inefficient or not controlling water in an efficient or desired manner. A water supply of sufficient quantity and quality is available for the desired use.

After Situation: Water is measured and controlled efficiently for desired use.

587 - Large, in-stream, Concrete Irrigation Water Diversion Structure

Unit Type = Cu Yd

Payment Rate, \$1017.42, HU \$1220.9

Description: Installation consists of installing a rectangular shaped concrete structure for the purpose of raising the water surface profile. Disturbed areas are protected with permanent vegetative cover.

Before Situation: The stream presently is annually manipulated with heavy equipment to maintain a water surface elevation allowing diversion of irrigation water. This condition has caused the degradation of the stream bed, excessive erosion and sediment deposition down stream, disruption of fish migration, with only floods well above normal high-water escaping the high banks of the stream. Excessive maintenance costs to maintain water levels occur annually.

After Situation: Banks are stabilized, and the water surface elevation is easily maintained. Water quality is protected downstream due to erosion protection, fish migration is accomplished, and annual maintenance costs are reduced. Any needed re-vegetation of disturbed areas use Critical Area Planting (342).

587 - Pressure Regulating Station

Unit Type = Ea

Payment Rate, \$2554.44, HU \$3065.33

Description: The installation of an inline pressure regulator in order to regulate the internal water pressure in an irrigation pipeline including thrust blocks, air vents, isolation valves. Conversion from buried to steel pipe to above ground installation is necessary for operation and maintenance. Reinforced concrete pad is required to anchor all installed items.

Before Situation: Pressure in irrigation pipeline is not regulated and can vary with the flow rate. Excessively high pressures can develop that decrease effective irrigation water management and operation of the pipeline system. Flow distribution is uneven.

After Situation: Constant pressure at a predefined, safe level can be maintained. Water management, distribution can be maintained at a constant level.

587 - Culvert >= 30 inches HDPE

Unit Type = In-Ft

Payment Rate, \$1.38, HU \$1.66

Description: Install a new HDPE culvert greater than or equal to 30 inches in diameter to convey water under roads or other barriers. Work includes site preparation, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and riprap protection of side slopes. Use (396) Aquatic Organism Passage when the primary intent is biological concerns, not hydrologic.

Before Situation: Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

After Situation: Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

587 - Culvert >= 30 inches CMP

Unit Type = In-Ft

Payment Rate, \$1.4, HU \$1.68

Description: Install a new CMP culvert greater than or equal to 30 inches in diameter to convey water under roads or other barriers. Work includes site preparation, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and riprap protection of side slopes. Use (396) Aquatic Organism Passage when the primary intent is biological concerns, not hydrologic.

Before Situation: Water flow needs to be conveyed under an access road, ditch or other barrier. Water must be conveyed in a controlled fashion.

After Situation: Water is conveyed in a controlled manner.

587 - Alfalfa, orchard valve

Unit Type = In

Payment Rate, \$26.27, HU \$31.53

Description: The use of alfalfa or orchard valves ranging from 6" to 14" diameter to deliver water from an irrigation pipeline to a field. The use of inline valves to distribute water within an irrigation pipeline system more efficiently. The use of a chemigation valve to add chemicals to an irrigation system to meet crop requirement needs.

Before Situation: Irrigation efficiency and delivery from earthen ditch to field are low.

After Situation: Irrigation efficiency and distribution are improved.

587 - Inline Valve less than 12 inch

Unit Type = In

Payment Rate, \$22.35, HU \$26.82

Description: The use of inline valves less than 12" diameter to regulate and control water in a high pressure irrigation pipeline to a field. The use of inline valves to distribute water within an irrigation pipeline system more efficiently to meet crop requirement needs.

Before Situation: Irrigation efficiency and delivery from earthen ditch to field are low.

After Situation: Irrigation efficiency and distribution are improved.

587 - Inline Valve greater than or equal to 12"

Unit Type = In

Payment Rate, \$119.18, HU \$143.02

Description: The use of inline valves greater than or equal to 12" diameter to regulate and control water in a high pressure irrigation pipeline to a field. The use of inline valves to distribute water within an irrigation pipeline system more efficiently to meet crop requirement needs.

Before Situation: Irrigation efficiency and delivery from earthen ditch to field are low.

After Situation: Irrigation efficiency and distribution are improved.

587 - chemigation valve <12 inch

Unit Type = In

Payment Rate, \$39.1, HU \$46.92

Description: The use of chemigation valves less than 12" diameter to regulate and control injection of chemicals into irrigation systems.

Before Situation: Nutrient application low efficiency.

After Situation: Nutrient application is improved.

587 - Chemigation valve >=12 inch

Unit Type = In

Payment Rate, \$74.57, HU \$89.48

Description: The use of chemigation valves greater than or equal to 12" diameter to regulate and control injection of chemicals into irrigation systems.

Before Situation: Nutrient application low efficiency.

After Situation: Nutrient application is improved.

590 – Nutrient Management

590 - Basic NM System

Unit Type = Ac

Payment Rate, \$2.36, HU \$2.83

Description: Implementation of a basic nutrient management system on cropland or hay land where there is no manure application. The planned NM system will meet the current 590 standard. Implementation will result in the proper rate, source, method of placement, and timing of nutrients. Payment for implementation is to defray the costs of soil testing, analysis, consultant services that provide nutrient recommendations based on LGU recommendations or crop removal rates and an associated nutrient budget, and recordkeeping. Records demonstrating implementation of the 4 R's of the NM criteria will be required.

Before Situation: In this geographic area, a fertility program is either non-existent or does not meet the 590 nutrient management standard. Soil testing is not completed on a regular basis and applications of fertilizers are not based on land grant university recommendations or a nutrient budget. An environmental evaluation or risk assessment is not completed. Nutrients are transported to surface waters through runoff or soil erosion or to ground water from leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients.

After Situation: A nutrient management system will be developed to meet the NRCS 590 standard. The development and implementation of a nutrient management plan (NMP) will benefit plant productivity and reduce off-site degradation. A nutrient management budget will be developed for each field(s) based on soil test analysis and land grant university recommendations or crop removal rates. On planning units typically 40 acres or larger, soil testing is completed according to LGU recommendations. The use of pre-plant soil tests will assist with the proper development of the annual nutrient budget. The use post-harvest of soil and/or tissue tests (results interpreted by crop consultant) will help establish the adequacy of the plan in meeting crop needs while minimizing P application rate and residual N, thus reducing the potential for off-site impacts. Records will be provided annually of the current soil test, analysis, amount of application, forms and rates of nutrients for each field, including post-harvest analysis. Applications will be completed in a manner that minimizes nutrient runoff and leaching or buildup of excess nutrient concentrations.

590 - Basic Organic NM System

Unit Type = Ac

Payment Rate, \$4.06, HU \$4.87

Description: The planned NM system for organic production will meet the current 590 standard. Implementation will result in the proper rate, source, method of placement, and timing of nutrients. Payment for implementation is to defray the costs of soil testing, manure and/or compost analysis, training attendance, consultant services that provide nutrient recommendations. Records demonstrating implementation of the 4 R's of NM standard will be required. The basis for nutrient applications will be recommendations based on soil and manure analyses.

Before Situation: In this geographic area, an organic fertility program does not meet the 590 nutrient management standard. Soil testing is not completed on a regular basis and applications of organic fertilizers and amendments are not based on a nutrient budget. Nutrients are transported to surface waters through runoff or erosion and to ground waters through leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients. Fields have little or no erosion protection during critical periods often times resulting in sheet, rill, and ephemeral erosion.

After Situation: A nutrient management system will be developed to meet the NRCS 590 standard and NOP regulations. A nutrient management budget will be developed annually for each field(s) based on soil test analysis and crop needs. Soil testing is completed according to LGU instructions. Application of nutrients will be completed at the proper rate, timing, and methods, and sources. Applications will be completed in a manner that minimizes nutrient runoff and leaching or buildup of excess nutrient concentrations. Applications of nutrients via manures, cover crops or approved commercial forms are applied in a manner that minimizes nutrient runoff and leaching. Specialized training is required by attending annual workshops and/or conferences. Records will be provided annually of the current soil test, analysis, amount of application, forms and rates of nutrients for each field.

590 - Small Farm/Diversified

Unit Type = Ea

Payment Rate, \$143.36, HU \$172.03

Description: Small farm/diversified systems include CSA's (community supported agriculture), truck farms, market gardens, etc., where numerous variable crops are grown on small acreages. This scenario attempts to capture the higher cost/acre of nutrient management planning and implementation on smaller production areas (usually between .25-10 acres) with a large number of crops, often times with multiple harvests per year that require intense and diversified nutrient management. The planned NM system for this organic or conventional production system will meet current 590 Nutrient Management criteria. Payment for implementation of this scenario is to defray the costs of soil testing, manure and/or compost analysis, training attendance, and consultant services that provide nutrient management recommendations, associated nutrient budgets, and recordkeeping. Records demonstrating implementation of the 4 R's of NM will be required.

Before Situation: In this geographic area, a fertility program does not meet the 590 nutrient management standard. Soil testing is not completed on a regular basis and applications of fertilizers, amendments, manure, and/or compost are not based on land grant university recommendations or a nutrient budget. Nutrients are transported to surface waters through runoff or erosion or to groundwater by leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients. Fields have little or no erosion protection during critical periods.

After Situation: A nutrient management system will be developed to meet the 590 nutrient management standard and NOP regulations where applicable. A nutrient management budget will be developed annually for each "crop block" or each crop rotation pertaining to a block of ground based on soil test analysis and land grant university recommendations or crop removal rates. Application of nutrients will be completed at the proper rate, timing, and methods, and sources. Applications will be completed in a manner that minimizes nutrient runoff and leaching or buildup of excess nutrient concentrations. Application rates of all nutrients are based upon soil test analyses either LGU recommendations, crop removal rates, or industry standard. Specialized training is required by attending annual workshops and/or conferences. Records will be provided annually of the current soil test, analyses, amount of application, forms and rates of nutrients for each crop block.

590 - Basic NM system with manure

Unit Type = Ac

Payment Rate, \$3.92, HU \$4.7

Description: Implementation of a basic nutrient management system on planning units of cropland or hay land where there is manure or compost application in addition to commercial fertilizer applications. The planned NM system will meet the current 590 standard. Implementation will result in the proper rate, source, method of placement, and timing of nutrients while minimizing off-site degradation or the excessive built up of N and P. Payment for implementation is to defray the costs of soil testing, manure testing, analysis, proper implementation, consultant services that provide nutrient recommendations based on LGU recommendations or crop removal rates and an associated nutrient budget, and recordkeeping. Risk assessments including PI (phosphorus index) and NI (nitrogen index) will be completed with applications of manure completed based on risk results. Records demonstrating implementation of the 4 R's of the NM plan will be required along with copies of risk assessments.

Before Situation: In this geographic area, a fertility program is either nonexistent or does not meet the 590 nutrient management standard. Soil testing and manure testing is not completed on a regular basis and applications of nutrients are not based on land grant university recommendations or a nutrient budget. Nutrients and manure solids are transported to surface waters through runoff or erosion or to groundwater through leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients. Fields have little or no erosion protection often times resulting in wind, sheet, rill, and ephemeral erosion.

After Situation: A nutrient management system that includes manure as a source will be developed to meet the NRCS 590 standard. The development and implementation of a nutrient management plan (NMP) will benefit plant productivity and reduce off-site degradation. A nutrient management budget will be developed for each field(s) based on soil tests and manure test analysis along with land grant university recommendations or crop removal rates. On a planning unit soil testing is completed according to LGU recommendations. The use of pre-plant soil tests will assist with the proper development of the annual nutrient budget. Applications of manure are based on risk assessments (PI - phosphorus index). The use of post-harvest soil and/or tissue tests (results interpreted by crop consultant) will help establish the adequacy of the plan in meeting crop needs while minimizing P application rate and residual N, The use of Pre side-dress soil nitrogen test (PSNT) or a Pre Top Dress Tissue test (PTDTT) prior to the rapid biomass growth of the plant will assist the producer in evaluating the mineralization of Nitrogen from manures / cover crops in providing adequate nitrogen to meet the crop requirements, thus reducing the potential for off-site impacts. Records will be provided annually documenting current soil tests, manure tests, analyses, amount of application, forms and rates of nutrients for each field, including post-harvest analysis. Applications will be completed in a manner that minimizes nutrient runoff and leaching or buildup of excess nutrient concentrations. The producer will attend one extension crop school or nutrient management workshop or similar activity annually to stay current on crop-specific nutrient management.

590 - Enhanced Nutrient Mgt

Unit Type = Ac

Payment Rate, \$24.0675, HU \$28.881

Description: Includes split applications and multiple nutrient concentration tests (other than only soil tests) and methods that more concisely enable scheduling of appropriate fertilizer applications. Nutrients are transported to surface waters through runoff or wind erosion in quantities that degrade water quality and limit use of intended purposes. Inefficient energy utilization occurs due to traditional methods and forms of fertilizer applications.

Before Situation: In this geographic area, conventional fertility programs involve very little or no soil or manure testing. Application of fertilizers, including manures and amendments, are completed annually based upon tradition that does not specifically consider the detrimental effects of improper timing or rates of nutrients, or excess nutrient build-up in the soil. Fields are overwintered with little or no erosion protection often times resulting in sheet, rill, and ephemeral erosion by spring. Runoff flows into adjacent streams, water courses, tile drains, field surface drains, or other water courses causing degradation to receiving waters or leaching of nutrients to shallow ground water sources.

After Situation: The development and implementation of a Nutrient Management Plan (NMP) will benefit plant productivity and reduce off-site movement of nutrients. The use of pre-plant soil tests will assist with the development of the annual nutrient budget in accordance with Land Grant University fertilizer guides. The NMP will stress the use of the four R's (Right Source of Nutrients, Right Time of Application, Right Rate, and Right Method of Application). These include practices such as use of split applications, slow release nutrients, nitrogen inhibitors, proper timing of application, more appropriate formulations, banding, etc. Additional nutrient tests including PSNT (pre-side dress nitrogen test), CSNT (corn stalk nitrate test), and PPSN (pre-plant soil nitrate test), chlorophyll meters, spectral analysis, etc., may be used to further refine nutrient applications. Record keeping will document application of nutrients based on the 4 R's. Use of a post-harvest soil test or tissue tests (interpreted by a crop consultant) will help establish the adequacy of the plan in meeting crop needs while minimizing P application rate and residual N, thus reducing the potential for off-site impacts. Further minimization of risk is accomplished by identifying the variability across the field(s) by using soil survey maps or other simple techniques to establish zones, along with zonal soil testing. Nutrients are applied at rates based on soil test zone analyses. The producer will attend training of "crop school or nutrient management workshop" or similar activity annually to stay current on crop-specific nutrient management. Typical treatment area is 40 acres. Soil testing is completed according to LGU recommendations. Analysis is completed at least once every three years for N-P-K, and for N annually. A nutrient budget is developed for each field or section of field annually. Application of nutrients via fertilizers, and/or manures applied in a manner that minimizes nutrient runoff and leaching. Application rates of all sources of nutrients are based upon soil tests and either LGU recommendations, crop removal rates, or industry standard.

590 - Precision NM System

Unit Type = Ac

Payment Rate, \$15.38, HU \$18.45

Description: Implementation of a basic precision nutrient management system on cropland. The planned NM system will meet the current 590 standard. Payment for implementation is to defray the costs of soil testing, analysis, consultant services that provide nutrient recommendations based on LGU recommendations or crop removal rates and an associated nutrient budget, recordkeeping, and monitoring on a precision level. Records demonstrating implementation of the 4 R's of the NM plan will be required. This scenario goes beyond the basic NM system by using technologies that improve efficiency and effectiveness of nutrient management by utilizing precision techniques and tools. Precision nutrient mgmt. techniques ensure that the right rate, proper timing, and proper placement of nutrients minimize non-point source pollution and provide proper amounts of nutrients to the crop where it is needed and not applying where it is not needed.

Before Situation: In this geographic area, a fertility program is already in place, however, applied nutrients are applied across large acreages based on a lack of representative soil samples or analyses. The current NM system may or may not meet 590 standards, however, could be improved by reducing energy inputs. Because whole fields are fertilized with the same rate, excess nutrients may be applied in some areas while inadequate amounts of nutrients are applied in other areas. Due to the mono-application rate, excess nutrients are transported to surface waters through runoff or erosion or to ground water from leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients. Fertilizer applications are made in their entirety more than 30 days prior to planting. Applications do not consider the detrimental effects of improper timing or improper rates. Whole fields with like crops and rotation are fertilized the same.

After Situation: Soil testing is completed in a fashion that provides a representative assessment of nutrient concentrations in each field or management zone. Soil sampling consists of methods that allow for various zones to be established. Zone maps are created and a nutrient budget developed for each zone. An application rate (prescription) is developed for each zone based on representative soil analysis and zone nutrient budget. Nutrient applications are based on LGU recommendations. Soil testing is completed annually for N and at least once every three years for P-K. A nutrient budget is developed for each field annually. Application of nutrients is completed so that non-point source pollution is minimized. Nutrients are applied based on realistic yield expectations. Records are maintained for all nutrient applications and soil testing. Record keeping will include all soil tests, analysis, zone maps, nutrient prescriptions and budgets, and as-applied applications.

590 - Advanced NM Precision System

Unit Type = Ac

Payment Rate, \$19.45, HU \$23.34

Description: Implementation of an advanced precision nutrient management system on cropland. The planned NM system will meet the current 590 standard. Payment for implementation is to defray the costs of soil testing, analysis, consultant services, skilled labor and specialized nutrient application that provide nutrient proper recommendations based on LGU recommendations or crop removal rates and an associated nutrient budget, recordkeeping, and monitoring on a precision level that includes split applications, NDVI sensing, and aerial imaging. Records demonstrating implementation of the 4 R's of the NM plan will be required. This scenario goes beyond the basic precision system by using technologies that improve efficiency and effectiveness of nutrient management by utilizing specialized precision techniques and tools (variable rate applicators, NDVI, aerial photography, yield monitoring). Precision nutrient mgmt. techniques ensure that the right rate, proper timing, and proper placement of nutrients minimize non-point source pollution and provide proper amounts of nutrients to the crop where it is needed and not applying where it is not needed.

Before Situation: In this geographic area, a fertility program is already in place, however, application of nutrients across large acreages is based on a lack of representative soil samples or analyses. The current NM system may or may not meet 590 standards, however, could be improved by reducing energy inputs and utilizing precise mapping and diagnostic equipment. Because whole fields are often fertilized with the same rate, excess nutrients may be applied in some areas while inadequate amounts of nutrients are applied in other areas. Excess nutrients are transported to surface waters through runoff or erosion or to ground water from leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients. Fertilizer applications are made in their entirety more than 30 days prior to planting. Applications do not consider the detrimental effects of improper timing or improper rates. Whole fields with like crops and rotation are fertilized the same.

After Situation: Soil testing is completed in a fashion that provides a representative assessment of nutrient concentrations in each field or planning unit including zone directed sampling, real time NDVI (normalized differenced vegetative index) sensing, EC Index type sampling, or via high definition aerial photography that allows for the identification of numerous variations (zones) in a planning unit. Zone maps are created and a nutrient budget developed for each zone. An application rate (prescription) is developed for each zone based on representative soil analysis and a zone nutrient budget. Soil testing is completed annually for N and at least once every three years for P-K. A nutrient budget is developed for each field annually. Application of nutrients is completed so that non-point source pollution is minimized. Nutrients are applied based on realistic yield expectations. The average field size is ≥ 40 acres. Applications of nutrients are completed using a GPS guided variable rate fertilizer applicator. Applications of nutrients will be completed in split applications where a majority of the N needs are applied based on the needs of the crop based on growing season requirements. Advanced training may be needed to effectively implement the practice. Producer will attend training courses and use specialized labor where needed in the annual maintenance of the NM plan. Record keeping will include all soil tests, analysis, zone maps, nutrient prescriptions and budgets, and as-applied applications. Yield monitoring maps will be collected and utilized (where technology allows) to develop the following year nutrient applications.

590 - Adaptive NM

Unit Type = Ea

Payment Rate, \$1005.59, HU \$1206.71

Description: Implementation of nutrient management on a small plot. Scenario includes implementing replicated strip trials on a field plot to evaluate, identify and implement various nutrient use efficiency improvement methods for timing, rate, method of application, or source of nutrients.

Before Situation: The practice will be installed on cropland (small grain rotation or typical corn-soybean rotation) to address water quality degradation, air quality degradation and energy concerns. The scenario applies to non-organic and organic operations.

After Situation: Installation of this scenario will result in adopting the four R's of nutrient management (right source, right rate, right timing and right placement) by following the procedures outlined in Agronomy Technical Note 6 - Adaptive Nutrient Management. Implementation involves establishing the replicated plots to evaluate one or more of the 4 R's. The plot will consist of 4 replicated plots designed, laid out, managed and evaluated with the assistance of technical service provider certified in nutrient management planning and implementation. Results are used to make nutrient application decisions to address water quality degradation issues and nutrient use efficiencies. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 6 - Adaptive Nutrient Management. The yields for each plot will be adjusted to the appropriate moisture content.

595 – Integrated Pest Management

595 - Basic IPM Field 1RC

Unit Type = Ac

Payment Rate, \$11.39, HU \$13.67

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Large Scale Field/Forage Crops to address one identified resource concern with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for one identified resource concern (e.g. Water Quality - Impacts to Human Drinking Water) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concern) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Basic IPM Field >1RC

Unit Type = Ac

Payment Rate, \$15.37, HU \$18.44

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Large Scale Field/Forage Crops to address multiple identified resource concerns with either risk prevention or risk mitigation

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to two or more identified resource concerns (e.g. Water Quality – Impacts to Human Drinking Water and Impacts on Pollinators).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for two or more identified resource concerns (e.g. Water Quality - Impacts to Human Drinking Water and Impacts on Pollinators) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Advanced Field All RCs

Unit Type = Ac

Payment Rate, \$22.79, HU \$27.35

Description: A comprehensive IPM plan with LGU-approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied in Large Scale Field/Forage Crops to address all identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A comprehensive IPM plan with Land Grant University approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied to help meet the minimum criteria for all identified resource concerns with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Basic IPM Fruit/Veg 1RC

Unit Type = Ac

Payment Rate, \$63.62, HU \$76.34

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Large Scale Small Fruit/Vegetable Crops to address one identified resource concern with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for at least one identified resource concern (e.g. Water Quality - Impacts to Human Drinking Water) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concern) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Basic IPM Fruit/Veg >1RC

Unit Type = Ac

Payment Rate, \$81.65, HU \$97.97

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Large Scale Small Fruit/Vegetable Crops to address multiple identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to two or more identified resource concerns (e.g. Water Quality – Impacts to Human Drinking Water and Impacts on Pollinators).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for two or more identified resource concerns (e.g. Water Quality - Impacts to Human Drinking Water and Impacts on Pollinators) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Advanced IPM Fruit/Veg All RCs

Unit Type = Ac

Payment Rate, \$124.6, HU \$149.52

Description: A comprehensive IPM plan with LGU-approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied in Large Scale Small Fruit/Vegetable Crops to address all identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A comprehensive IPM plan with Land Grant University approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied to help meet the minimum criteria for all identified resource concerns with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Basic IPM Orchard 1RC

Unit Type = Ac

Payment Rate, \$81.65, HU \$97.97

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Large Scale Orchard/Specialty Crops to address one identified resource concern with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for at least one identified resource concern (e.g. Water Quality - Impacts to Human Drinking Water) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concern) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Basic IPM Orchard >1RC

Unit Type = Ac

Payment Rate, \$124.6, HU \$149.52

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Large Scale Orchard/Specialty Crops to address multiple identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to two or more identified resource concerns (e.g. Water Quality – Impacts to Human Drinking Water and Impacts on Pollinators).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for two or more identified resource concerns (e.g. Water Quality - Impacts to Human Drinking Water and Impacts on Pollinators) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Advanced IPM Orchard All RCs

Unit Type = Ac

Payment Rate, \$190.96, HU \$229.15

Description: A comprehensive IPM plan with LGU-approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied in Large Scale Orchard/Specialty Crops to address all identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A comprehensive IPM plan with Land Grant University approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied to help meet the minimum criteria for all identified resource concerns with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - IPM S-Farm 1RC

Unit Type = Ea

Payment Rate, \$386.93, HU \$464.62

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Small Farm/Diversified Systems (e.g. CSA, organic, etc.) to address one identified resource concern with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for at least one identified resource concern resource concern (e.g. Water Quality - Impacts to Human Drinking Water) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concern) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - IPM S-Farm >1RC

Unit Type = Ea

Payment Rate, \$498.38, HU \$598.05

Description: A basic IPM plan with LGU-approved pest monitoring techniques and pest thresholds (where available) is applied in Small Farm/ Diversified Systems (e.g. CSA, organic, etc.) to address multiple identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to two or more identified resource concerns (e.g. Water Quality – Impacts to Human Drinking Water and Impacts on Pollinators).

After Situation: A basic IPM system has been implemented with Land Grant University approved pest monitoring techniques and pest thresholds (where available) to help meet the minimum criteria for two or more identified resource concerns (e.g. Water Quality - Impacts to Human Drinking Water and Impacts on Pollinators) with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

595 - Advanced IPM S-Farm All RCs

Unit Type = Ea

Payment Rate, \$747.56, HU \$897.08

Description: A comprehensive IPM plan with LGU-approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied in Small Farm/Diversified Systems (e.g. CSA, Organic, etc.) to address all identified resource concerns with either risk prevention or risk mitigation.

Before Situation: Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an identified resource concern (e.g. Water Quality – Impacts to Human Drinking Water).

After Situation: A comprehensive IPM plan with Land Grant University approved pest prevention, avoidance and monitoring techniques and pest thresholds (where available) is applied to help meet the minimum criteria for all identified resource concerns with either risk prevention (e.g. planned pesticides have no risk to the identified resource concerns) or risk mitigation (e.g. planned pesticides have appropriate mitigation planned from Agronomy Technical Note 5 for “Intermediate”, “High” or “Extra High” WIN-PST Final Hazard Ratings).

603 – Herbaceous Wind Barriers

603 - Annual Species

Unit Type = Ln Ft

Payment Rate, \$0.18, HU \$0.22

Description: Implementation of herbaceous barriers to reduce wind velocities and wind-borne particulate matter. Barriers are composed of annual vegetation, living or dead. Plant materials shall be selected for local adaptation and climatic conditions and are resistant to lodging and are non-spreading in their habit. Barriers will be designed as close to perpendicular to prevailing winds as practical. Barrier direction, spacing, and composition needed to achieve the desired purpose shall be designed using the currently approved wind erosion technology.

Before Situation: Typically cropland has excessive soil disturbance and unsheltered distance that results in excessive wind erosion that affect soil resources. Seedling development and wildlife habitat are negatively affected by wind-borne sediment and sediment-borne contaminants travelling offsite.

After Situation: Implementation of herbaceous wind barriers will modify the flow and velocity of air dependent upon barrier height, porosity, spacing and wind speed. The annual herbaceous wind barrier will be placed across an entire field perpendicular to applicable prevailing wind direction. Planting width is approximately 8 feet wide. Implementation will reduce soil loss; protect growing plants from damage by windblown soil particles, provide food and cover for wildlife. Payment is for the design and implementation of annual barriers and required reestablishment.

603 - Perennial species

Unit Type = Ln Ft

Payment Rate, \$0.19, HU \$0.23

Description: Implementation of herbaceous barriers to reduce wind velocities and wind-borne particulate matter. Barriers are composed of perennial living vegetation. Plant materials shall be selected for local adaptation and climatic conditions and are resistant to lodging and are non-spreading in their habit. Barriers will be designed as close to perpendicular to prevailing winds as practical. Barrier direction, spacing, and composition needed to achieve the desired purpose shall be designed using the currently approved wind erosion technology.

Before Situation: Typically cropland has excessive soil disturbance and unsheltered distance that results in excessive wind erosion that affect soil resources. Seedling development and wildlife habitat are negatively affected by wind-borne sediment and sediment-borne contaminants travelling offsite.

After Situation: Implementation of herbaceous wind barriers will modify the flow and velocity of air dependent upon barrier height, porosity, spacing and wind speed. The perennial herbaceous wind barrier will be placed across an entire field perpendicular to applicable prevailing wind direction. Planting width is approximately 8 feet wide with rows 7 to 8 " apart and 1320 feet long. Implementation will reduce soil loss; protect growing plants from damage by windblown soil particles, provide food and cover for wildlife. Payment is for the design and implementation of perennial barriers and required reestablishment.

612 – Tree/Shrub Establishment**612 - Individual tree, large - hand planting**

Unit Type = Ea

Payment Rate, \$7.67, HU \$9.21

Description: Larger sized seedlings will be hand planted in the forested area where few or no forest trees or shrubs are growing, the existing stand of trees or shrubs needs under planting, or the previously planted seedling tree or shrub stocking level is below desirable conditions. Wildlife habitat is degraded by loss of forest conditions.

Before Situation: The stocking level of the forest does not meet the minimum recommended number of trees per acre. The existing condition of the forest stand does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor.

After Situation: The prescribed number of trees are hand planted, and the objectives of the landowner are met. The forest will provide wildlife habitat, provide a long term ground cover, and capture atmospheric carbon.

612 - Individual tree, medium - hand planting

Unit Type = Ea

Payment Rate, \$4.24, HU \$5.09

Description: Medium sized seedlings will be hand planted in the forested area where few or no forest trees or shrubs are growing, the existing stand of trees or shrubs needs under planting, or the previously planted seedling tree or shrub stocking level is below desirable conditions. Wildlife habitat is degraded by loss of forest conditions.

Before Situation: The stocking level of the forest does not meet the minimum recommended number of trees per acre. The existing condition of the forest stand does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor.

After Situation: The prescribed number of trees are hand planted, and the objectives of the landowner are met. The forest will provide wildlife habitat, provide a long term ground cover, and capture atmospheric carbon.

612 - Individual tree, small - hand planting

Unit Type = Ea

Payment Rate, \$0.97, HU \$1.16

Description: Small seedlings will be hand planted in the forested area where few or no forest trees or shrubs are growing, the existing stand of trees or shrubs needs under planting, or the previously planted seedling tree or shrub stocking level is below desirable conditions. Wildlife habitat is degraded by loss of forest conditions.

Before Situation: The stocking level of the forest does not meet the minimum recommended number of trees per acre. The existing condition of the forest stand does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor.

After Situation: The prescribed number of trees are hand planted, and the objectives of the landowner are met. The forest will provide wildlife habitat, provide a long term ground cover, and capture atmospheric carbon.

612 - Individual tree - hand planting w/browse protection

Unit Type = Ea

Payment Rate, \$2.12, HU \$2.54

Description: Tree seedlings will be hand planted in the forested area where few or no forest trees growing, the existing stand of trees needs under planting, or the previously planted seedling tree stocking level is below desirable conditions. Seedlings are protected from wildlife browsing. Wildlife habitat is degraded by loss of forest conditions.

Before Situation: The stocking level does not meet the minimum recommended number of trees per acre and does not meet the landowners objectives. To be a viable forest additional seedlings need planting. Wildlife habitat is rated poor. Wildlife are known to browse tree seedlings in the area causing great damage.

After Situation: The prescribed number of trees are hand planted and the objectives of the landowner are met. Seedlings are protected from wildlife browsing by installing some type of protection devise. A forest will provide wildlife habitat, provide a long term ground and capture atmospheric carbon.

612 - Medium Density-hand plant Conifer, protect from wildlife

Unit Type = Ac

Payment Rate, \$322.47, HU \$386.96

Description: This practice involves planting of tree seedlings after the site has been prepared for seedling growth and establishment. The productivity of the site is good and will handle a medium density planting rate. Newly planted conifer seedlings are protected from browsing by installing open tree tubes. Terrain is moderately to steeply sloping, too steep to be planted with a mechanical tree planter so the area is hand planted.

Before Situation: The land has a little/no tree cover, or is stocked with the wrong tree species. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted).

After Situation: Land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement. Half of planted trees have vexar tubes, or similar, installed to protect from animal damage.

612 - Medium Density-hand plant Conifer

Unit Type = Ac

Payment Rate, \$171.65, HU \$205.97

Description: This practice involves planting of tree seedlings after the site has been prepared for seedling growth and establishment. The productivity of the site is good and will handle a medium density planting rate. Terrain is moderately to steeply sloping, too steep to be planted with a mechanical tree planter so the area is hand planted.

Before Situation: The land has a little/no tree cover, or is stocked with the wrong tree species. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted).

After Situation: Land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement.

612 - Medium Density-Conifer

Unit Type = Ac

Payment Rate, \$171.97, HU \$206.36

Description: This practice involves planting of tree seedlings after the site has been prepared for seedling growth and establishment. The productivity of the site is good and will handle a medium density planting rate. Terrain is moderately sloping and will be planted with a mechanical tree planter. Smaller size seedlings (1-0) are planted.

Before Situation: The land has a little or no tree cover, or is stocked with the wrong tree species. Competing vegetation is a before and after planting concern. Soil condition is degraded due to the loss of the native forest ecosystem (organic matter in top soil depleted). Native wildlife habitat is lacking.

After Situation: Land is established with permanent tree cover that will improve degraded plant condition, reduce soil erosion, establish wildlife habitat, sequester carbon and reduce invasive species presence. Establishing forest vegetation also creates corridors for wildlife movement. Half of planted trees have vexar tubes, or similar, installed to protect from animal damage.

612 - High Density planting

Unit Type = Ac

Payment Rate, \$371.97, HU \$446.36

Description: This practice applies to forestlands that are being actively managed. Tree seedlings are planted after the site has been prepared for seedling establishment and growth. Forest site productivity is high or very high and dense planting is planned. Larger containerized seedlings are planted. Terrain conditions allow for mechanical tree planting

Before Situation: The land lacks forest cover and needs replanting, is stocked with the wrong tree species, or is a nonstocked field. Seedlings selected are appropriate for the site and site conditions. Soil condition is degraded due to the loss organic matter in top soil. Tree seedlings with larger size root systems are planted to compete with other vegetation.

After Situation: Land is established with permanent tree cover that will improve degraded plant condition, establish wildlife habitat, sequester atmospheric carbon. Establishing forest vegetation also creates corridors for wildlife movement. Actions should be planned with competing vegetation concerns.

612 - Shrub Planting

Unit Type = Ac

Payment Rate, \$150.53, HU \$180.64

Description: Shrubs are planted to provide a more diverse habitat. Plantings are in either uplands or bottomlands. The site lacks ground level habitat structure and diversity for wildlife.

Before Situation: No shrubby vegetation, or very little, is present under the forest overstory. Wildlife species that need shrub cover are not present. An adequate stand of overstory trees is present, but it is a single level, not multi-level.

After Situation: An area is planted with shrubs. Shrubs are not planted over the entire area. They are planted in groups or motts. The motts, more or less circular in shape, are 50 feet in diameter, with 50 shrubs planted within each mott. Motts are randomly established to take advantage of site conditions and shrub species being planted.

614 – Watering Facility**614 - Permanent Drinking/Storage <500 Gallons**

Unit Type = Gal

Payment Rate, \$2.56, HU \$3.07

Description: A permanent watering facility for livestock or wildlife constructed of approved materials with less than 500 gallons of capacity, to provide adequate quantity and quality of water for storage and or direct drinking access.

Before Situation: This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation: A permanent watering facility is installed to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing.

614 - Permanent Drinking/Storage > 500-1000 Gallons

Unit Type = Gal

Payment Rate, \$1.88, HU \$2.26

Description: A permanent watering facility for livestock or wildlife constructed of approved materials with 500-1000 gallons of capacity, to provide adequate quantity and quality of water for storage and or direct drinking access.

Before Situation: This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation: A permanent watering facility is installed to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing.

614 - Permanent Drinking/Storage >1000-5000 Gallons

Unit Type = Gal

Payment Rate, \$1.13, HU \$1.35

Description: A permanent watering facility for livestock or wildlife constructed of approved materials with >1000-5000 gallons of capacity, to provide adequate quantity and quality of water for storage and or direct drinking access.

Before Situation: This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation: A permanent watering facility is installed to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing.

614 - Permanent Drinking/Storage >5000 Gallons

Unit Type = Gal

Payment Rate, \$0.61, HU \$0.73

Description: A permanent watering facility for livestock or wildlife constructed of approved materials with >5000 gallons of capacity, to provide adequate quantity and quality of water for storage and or direct drinking access.

Before Situation: This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation: A permanent watering facility is installed to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing.

614 - Frost Free Waterer

Unit Type = Ea

Payment Rate, \$717.71, HU \$861.26

Description: A frost/freeze free waterer for livestock constructed of approved materials that supplies adequate quantity and quality of water for direct drinking access. All watering facilities will be constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation.

Before Situation: Confined animal facilities are adjacent or near surface or at risk ground water sources.

After Situation: Facilities are moved and adequate livestock water sources are provided protecting the surface and or ground water quality resources of concern.

614 - Permanent Drinking/Storage >1000-5000 Gallons - remote locations

Unit Type = Gal

Payment Rate, \$1.36, HU \$1.63

Description: A permanent watering facility for livestock or wildlife constructed of approved materials with >1000-5000 gallons of capacity, to provide adequate quantity and quality of water for storage and or direct drinking access in remote areas that are more than 50 miles from source of equipment and/or materials.

Before Situation: This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and or wildlife, where water is not available in sufficient quantities at specific locations, and habitat, water quality, plant productivity and health needs to be improved.

After Situation: A permanent watering facility is installed to ensure an adequate supply and quality of water for livestock or wildlife for storage and or direct drinking access. All watering facilities are constructed from approved durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation and placed on a properly prepared foundation with required plumbing.

636 – Water Harvesting Catchment

636 - Surface Catchment

Unit Type = Sq Yd

Payment Rate, \$46.73, HU \$56.08

Description: Construct an apron, utilizing: a plastic or rubber membrane laid on a prepared ground surface; or an asphalt or concrete surface with curbing; to collect rain water. Divert collected water from the surface catchment by gravity through an 8" diameter, PVC SDR-35 pipe to an existing tank or plastic-lined earthen reservoir. Exclusion of animals is required, so conservation practice 382 - Fencing, may be needed to protect the catchment.

Before Situation: Inadequate water available to address resource concerns. Client hauls water to supply needs.

After Situation: Design and construct an impervious surface as the primary collection component, and a pipe to convey the water to create a reliable water supply for livestock.

636 - Elevated Catchment

Unit Type = Sq Yd

Payment Rate, \$61.66, HU \$73.99

Description: Build a wooden frame, "post-and-pier" structure, with a corrugated metal roof, to collect rain water. The structure is supported by "poured-in-place", concrete footings, with tie-down straps. Divert collected water from catchment area with guttering and downspout through a PVC Schedule 40 pipe, to a tank (not included)for a reliable storage and subsequent use.

Before Situation: Inadequate water available to address resource concerns. Client hauls water to supply needs.

After Situation: The guttering and downspouts collects the roof runoff and the water is conveyed through a pipe, by gravity, to a storage tank for use by livestock or a very small irrigation system. This system is the primary collection component of a Water Harvesting Catchment (CPS 636) facility. Divert collected water from roof with guttering and downspout through a 4" diameter PVC Sch-40 pipe,

638 – Water & Sediment Control Basin**638 - WASCOB less than 250 CY**

Unit Type = Cu Yd

Payment Rate, \$2.78, HU \$3.33

Description: An earthen embankment or combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. Work is done with dozer, scraper, or road grader. Includes all equipment necessary to excavate, shape, grade and compact the Water and Sediment Control Basin and mobilization of equipment. This practice is utilized to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff. Sheet and rill erosion will be controlled by other conservation practices.

Before Situation: Farming fields with excessive slope length has resulted in multiple rills and/or ephemeral gullies that will continue to worsen over time. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient transport.

After Situation: Water and Sediment Control Basis is constructed with 200 CY of excavation/earthfill with dozer, scraper and/or road grader. Rill and/or gully erosion is reduced. If riser and underground outlet are needed, then include Underground Outlet (620). Include Critical Area Planting (342) where necessary to prevent erosion following construction activities.

638 - WASCOB, greater than 250 CY

Unit Type = Cu Yd

Payment Rate, \$2.03, HU \$2.44

Description: An earthen embankment or combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. Work is done with dozer, scraper, or road grader. Includes all equipment necessary to excavate, shape, grade and compact the Water and Sediment Control Basin and mobilization of equipment. This practice is utilized to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff. Sheet and rill erosion will be controlled by other conservation practices.

Before Situation: Farming fields with excessive slope length has resulted in multiple rills and/or ephemeral gullies that will continue to worsen over time. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient transport.

After Situation: Water and Sediment Control Basis is constructed with 700 CY of excavation/earthfill with dozer, scraper and/or road grader. Rill and/or gully erosion is reduced. If riser and underground outlet are needed, then include Underground Outlet (620). Include Critical Area Planting (342) where necessary to prevent erosion following construction activities.

638 - WASCOB topsoil

Unit Type = Cu Yd

Payment Rate, \$2.25, HU \$2.7

Description: Prior to building the embankment, 6 inches of topsoil is removed and stockpiled. Outlet is an underground outlet. An earthen embankment or combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. Topsoil is replaced following construction of the embankment. Includes all equipment necessary to strip and stock pile topsoil, excavate, shape, grade and compact the Water and Sediment Control Basin, spread and replace topsoil after construction and mobilization of equipment. Seeding not included. This practice is utilized to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff. Sheet and rill erosion will be controlled by other conservation practices. Work is done with dozer, scraper, or road grader.

Before Situation: Site has shallow topsoil which if removed by earthwork for construction of embankment will significantly impact yields. Farming fields with excessive slope length has resulted in multiple rills and/or ephemeral gullies that will continue to worsen over time. The excessive erosion may lead to deterioration of receiving waters due to excessive sedimentation and nutrient transport.

After Situation: Water and Sediment Control Basis is constructed with 700 CY of excavation/earthfill with dozer, scraper and/or road grader. Rill and/or gully erosion is reduced. If riser and underground outlet are needed, then include Underground Outlet (620). Include Critical Area Planting (342) where necessary to prevent erosion following construction activities.

642 – Water Well**642 - Well <=100 Ft**

Unit Type = Ln Ft

Payment Rate, \$38.79, HU \$46.55

Description: Installation of a well, in areas where sufficient water is known to occur at <100 feet of depth from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or improve the efficiency of an existing irrigation system.

Before Situation: Livestock have insufficient water or are fenced from their water source.

After Situation: Sufficient water is available for livestock or wildlife. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

642 - Well >100-300 Ft

Unit Type = Ln Ft

Payment Rate, \$23.33, HU \$28

Description: Installation of a well, in areas where sufficient water is known to occur at >100-300 feet of depth from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or improve the efficiency of an existing irrigation system.

Before Situation: Livestock have insufficient water or are fenced from their water source.

After Situation: Sufficient water is available for livestock or wildlife. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

642 - Well >300-600 Ft

Unit Type = Ln Ft

Payment Rate, \$20.48, HU \$24.57

Description: Installation of a well, in areas where sufficient water is known to occur at 300 - 600 feet of depth from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or improve the efficiency of an existing irrigation system.

Before Situation: Livestock have insufficient water or are fenced from their water source.

After Situation: Sufficient water is available for livestock or wildlife. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

642 - Well >600 Ft

Unit Type = Ln Ft

Payment Rate, \$20.4, HU \$24.48

Description: Installation of a well, in areas where sufficient water is known to occur > 600 feet of depth from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock or improve the efficiency of an existing irrigation system.

Before Situation: Livestock have insufficient water or are fenced from their water source.

After Situation: Sufficient water is available for livestock or wildlife. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

642 - Remote Locations

Unit Type = Ln Ft

Payment Rate, \$26.05, HU \$31.26

Description: Installation of a well, in areas where sufficient water is known to occur >300 feet of depth from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the practice is to provide water for livestock. Location is remote - more than 50 miles from an improved roadway.

Before Situation: Remote locations where livestock have insufficient water or are fenced from their water source.

After Situation: Sufficient water is available for livestock or micro-irrigation. Utilize Pumping Plant (533) and Pipeline (516) as associated practices. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

643 – Restoration and Management of Rare and Declining Species

643 - Habitat Monitoring and Management, Low Intensity and Complexity (\$5,000 cap per contract year)

Unit Type = Ac

Payment Rate, \$3.2, HU \$3.84

Description: The adaptive management actions such as cutting of limbs that are impeding access of birds into nest boxes, replacing damaged fence markers, cleaning of nest structures and debris around other structures requires only hand labor.
Before Situation: Rare or declining habitat is deficient due to the absence of annual monitoring and adaptive management actions of low intensity and complexity.

After Situation: Rare and declining habitat is improved by implementation of annual adaptive management actions of low intensity and complexity.

644 – Wetland Wildlife Habitat Management**644 - Wetland Wildlife Habitat Monitoring and Management, Low Intensity and Complexity**

Unit Type = Ac

Payment Rate, \$3.62, HU \$4.34

Description: 1-2 monitoring efforts are needed. The adaptive management actions such as cutting of limbs that are impeding access of birds into nest boxes, replacing damaged fence markers, cleaning of nest structures and debris around other structures requires only hand labor and less than 8 hours labor per year.

Before Situation: Wetland wildlife habitat is deficient due to the absence of annual monitoring and adaptive management actions of low intensity and complexity.

After Situation: Wildlife habitat is improved by implementation of annual adaptive management actions of low intensity and complexity.

644 - Habitat Monitoring and Management, Medium Intensity and Complexity, with Foregone Income

Unit Type = Ac

Payment Rate, \$14.9, HU \$17.87

Description: Two or three adaptive management efforts are required (such as cutting of limbs that are impeding access of birds into nest boxes, replacing damaged fence markers, cleaning of nest structures and debris around other structures). The adaptive mgmt. requires hand labor and the occasional use of light equipment. Mowing of roads and trail is required to provide access for monitoring and management. Deferment of use for one season to implement adaptive management action will be needed.

Before Situation: Wetland wildlife habitat is deficient due to the absence of annual monitoring and adaptive management actions of medium intensity and complexity.

After Situation: wetland wildlife habitat is improved by implementation of annual adaptive management actions of medium intensity and complexity.

644 - Habitat Monitoring and Management, High Intensity and Complexity, with Foregone Income

Unit Type = Ac

Payment Rate, \$28.01, HU \$33.62

Description: The adaptive management actions (2 - 5 efforts) such as cutting of limbs that are impeding access of birds into nest boxes, replacing damaged fence markers, cleaning of nest structures and debris around other structures requires hand labor and light equipment. Deferment of use for one season to implement adaptive management action will be needed.

Before Situation: Wildlife habitat is deficient due to the absence of annual monitoring and adaptive management actions of high intensity and complexity.

After Situation: Wildlife habitat is improved by implementation of annual adaptive management actions of high intensity and complexity.

644 - Development of Shallow Micro-Topographic Features with Normal Farming Equipment.

Unit Type = Ac

Payment Rate, \$27.16, HU \$32.59

Description: Increase plant species richness and diversity, create micro-habitats for invertebrates, increase water infiltration and reduce run-off. The area is plowed to loosen the soil. Then the soil is excavated with normal farming equipment (e.g. tractor and box-blade) to a depth of 2-6 inches and immediately deposited. This lowering and raising of a box-blade restores the original micro-topographic features common to most landscapes and landforms prior to clearing, tilling, and annual mowing. Restoration of shallow but frequent micro-topographic features has been lost by the smoothing action of tillage and the original land-clearing.

Before Situation: Micro-topographic features have been eliminated by past conversion to agriculture and/or past cultural practices. This has resulted in the lack of micro-soil moisture gradients within the field. The opportunity for plant species richness and diversity is minimal. Water storage potential is absent. Water rapidly runs off the field after rains and snow melt, carrying nutrients, solids and surface organic materials. No micro-ponding sites are available for invertebrate use.

After Situation: Shallow micro-depressions and mounds are numerous. This varied micro-topographic features provided varied moisture gradients required for high plant species richness and diversity. Wildlife habitat is improved. Water conservation is increased, increasing vegetative production. Water quality is improved as the micro depressions capture sediments, nutrients and manure. Over time, the micro-depressions become more nutrient rich than the micro-highs, further increasing plant species richness.

644 - Development of Deep Micro-Topographic Features with Heavy Equipment.

Unit Type = Ac

Payment Rate, \$76.19, HU \$91.42

Description: Increase plant species richness and diversity, create micro-habitats for invertebrates, increase water infiltration and reduce run-off. The area is plowed prior to excavation to kill existing vegetation and allow for proper dirt work. Then the soil is excavated with track equipment (dozer) and immediately deposited. This lowering and raising of a dozer -blade restores the original deep micro-topographic features common to many landscapes and landforms prior to the lands conversion to agricultural lands. It is most commonly applied to well-drained soils as the purpose is for the micro-depression to pond water for short duration

Before Situation: Micro-topographic features have been eliminated by past conversion to agriculture and/or past cultural practices. This has resulted in the lack of micro-soil moisture gradients within the field. The opportunity for plant species richness and diversity is minimal. Water storage potential is absent. Water rapidly runs off the field after rains and snow melt, carrying nutrients, solids and surface organic materials. No micro-ponding sites are available aquatic dependent invertebrates. Vertebrate wildlife habitat is lacking diversity.

After Situation: Deep (6" - 12" depth) micro-depressions and mounds are numerous. These varied micro-topographic features provide varied moisture gradients required for development of high plant species richness and diversity. Wildlife habitat is improved. Water conservation is increased, increasing vegetative production. Water quality is improved as the deep micro-depressions capture sediments, nutrients and manure. Over time, the micro-depressions become more nutrient rich than the micro-highs, further increasing plant species richness.

645 – Upland Wildlife Habitat Management

645 - Monitoring and Mgmt, Low Intensity, no FI

Unit Type = Ac

Payment Rate, \$4.73, HU \$5.67

Description: Setting is grazing lands with the potential to provide upland wildlife habitat and that potential is not currently being captured. The identified upland wildlife habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to determine if the conservation system meets or exceeds the minimum quality criteria for the targeted wildlife. Management will be implemented based on the findings of the habitat assessment and monitoring. No decision or treatment associated with this practice or facilitating practices will require income foregone. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation: Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulting in low use of the area by target and associated upland wildlife species.

After Situation: Based on the results of a State-approved upland wildlife habitat assessment process, the application of upland wildlife habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate upland wildlife habitat conditions have addressed. Monitoring has maximized the benefits of the needed upland wildlife habitat treatment efforts.

645 - Monitoring and Mgmt, Medium Intensity with FI

Unit Type = Ac

Payment Rate, \$14.1, HU \$16.92

Description: Setting is grazing lands with the potential to provide upland wildlife habitat and that potential is not currently being captured. The identified upland wildlife habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to collect information/data that will result in adaptive management adoption. Decisions or treatments associated with this practice or facilitating practices will require income foregone due to the deferment of livestock. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation: Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulting in low use of the area by target and associated upland wildlife species.

After Situation: Based on the results of a State-approved upland wildlife habitat assessment process, the application of upland wildlife habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate upland wildlife habitat conditions have addressed. Monitoring has maximized the benefits of the needed upland wildlife habitat treatment efforts.

645 - Monitoring and Mgmt, High Intensity with FI

Unit Type = Ac

Payment Rate, \$20.94, HU \$25.12

Description: Setting is grazing lands with the potential to provide upland wildlife habitat and that potential is not currently being captured. The identified upland wildlife habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to determine if the conservation system meets or exceeds the minimum quality criteria for the targeted wildlife. Management will be implemented based on the findings of the habitat assessment and monitoring. Decisions or treatments associated with this practice or facilitating practices will require income foregone. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation: Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulting in low use of the area by target and associated upland wildlife species.

After Situation: Based on the results of a State-approved upland wildlife habitat assessment process, the application of upland wildlife habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate upland wildlife habitat conditions have addressed. Monitoring has maximized the benefits of the needed upland wildlife habitat treatment efforts.

645 - Monitoring and Management, Low Intensity with Foregone Income

Unit Type = Ac

Payment Rate, \$7.63, HU \$9.15

Description: Setting is a grazing lands with the potential to provide habitat for species of plants and animals identified as Rare and Declining and the habitat potential is not currently being captured. The identified habitat limiting factors can be restored, enhanced or created, with the application of this practice alone, or in combination with other supporting and facilitating practices. Monitoring will be used to determine if the conservation system meets or exceeds the minimum quality criteria for the targeted wildlife. No decision or treatment associated with this practice or facilitating practices will require income foregone. The planner will specify locations and identify the methods to the customer who will implement the monitoring and management plan.

Before Situation: Existing degraded plant conditions and resulting inadequate habitat for fish and wildlife have resulted in low use of the area by target species identified as Rare and Declining and associated species.

After Situation: Based on the results of a State-approved upland wildlife habitat assessment process, the application of habitat management efforts and prescribed monitoring have been implemented. With the application of this practice alone, or in combination with other supporting and facilitating practices, the inadequate habitat conditions have been addressed. Monitoring has maximized the benefits of the needed habitat treatment efforts.

646 – Shallow Water Development and Management

646 - Shallow Water Management

Unit Type = Ac

Payment Rate, \$48.38, HU \$58.05

Description: Sites are flooded up to a depth of 18" with an average depth of 9". Water is provided by natural flooding and/or precipitation.

Before Situation: There is inadequate habitat to provide optimum resting, nesting, and feeding habitat for waterfowl, shorebirds, and other wildlife (amphibians, reptiles, mammals, invertebrates, etc.).

After Situation: A single or series of shallow water areas that are managed per standard and specification. Water levels are regulated to maintain temporary wildlife habitat. Timing and duration of flooding and de-watering is dependent on specific species requirements. Water is pumped into area to be flooded. Flooded sites vary from mudflats to water depths of 18" with an average depth of 9". The hydrologic conditions of ponding and saturation (frequency, depth, duration, timing) provides optimum seasonal habitat for waterfowl, shorebirds, and other wildlife (amphibians, reptiles, mammals, invertebrates, etc.). If needed and dikes or water control structures are not currently present on the fields planned to be flooded, these practices may be planned for the same fields and cost shared under Structure for Water Control (587) and Dike (356). If a natural water source (i.e. precipitation or flooding) is not available, Pumping Plant (533) may be cost shared to provide a water source. Depending on local conditions, other Conservation Practices may also be required.

646 - Shallow Water Management, High Level

Unit Type = Ac

Payment Rate, \$119.12, HU \$142.94

Description: Sites are flooded up to a depth of 18" with an average depth of 9". Monitoring and adaptive management accomplished of existing water control structures is accomplished to meet very specific conditions needed to address previously identified degraded plant conditions or inadequate habitat for fish and/or wildlife. This high-level management is applied to lands used for crop, pasture, hay, forests or wildlife lands where target flora and fauna have been identified as a primary concern. Loss of some level of crop, forage, hay or forest products may occur depending on site specific conditions.

Before Situation: The site has existing infrastructure (reliable water source, dikes, water control structures, pumps, gates) to provide a reliable seasonal water source. The site is not subject to frequent natural flooding. The potential benefits to target fauna and flora is not being captured. The purchase of water, supply of water and intensive management of season water, coupled with monitoring, adaptive management from highly trained individuals will fully address the identified degraded plant conditions and/or inadequate habitat for fish and/or wildlife.

After Situation: A single or series of shallow water areas that are managed per standard and specification. Water levels are regulated to maintain temporary wildlife habitat. Timing and duration of flooding and de-watering is dependent on specific species requirements. Water is pumped into area to be flooded. Flooded sites vary from mudflats to water depths of 18" with an average depth of 9". The hydrologic conditions of ponding and saturation (frequency, depth, duration, timing) provides optimum seasonal habitat for waterfowl, shorebirds, and other wildlife (amphibians, reptiles, mammals, invertebrates, etc.). If Dikes or Water Control Structures are not currently present on the fields planned to be flooded, these practices may be planned for the same fields and cost shared under Structure for Water Control (587) and Dike (356). If a natural water source (i.e. precipitation or flooding) is not available, Pumping Plant (533) may be cost shared to provide a water source. Depending on local conditions, other Conservation Practices may also be required.

647 – Early Successional Habitat Development

647 - Mowing

Unit Type = Ac

Payment Rate, \$162.33, HU \$194.8

Description: Mowing can be used to increase structural diversity by creating areas of shorter vegetation preferred by some species or certain life stages of species. The setting is at the edge of crop fields, in pastures, at the edge of woodlands or brushy areas, and in odd areas such as pivot corners. Where the management of woody plants is required to create or maintain early successional habitat conservation practice 314 brush management or 666 forest stand improvement should be used. Where chemical control of weeds, including invasives, is required to reduce competition for the desired plant community conservation practice 315 herbaceous weed control should be used. Where the seed bank is inadequate for natural regeneration and seeding is required use conservation practice 550 range seeding or 327 Conservation Cover. Where the need is to create early successional habitat within or at the edge of woodland or forest use conservation practice 666 forest stand improvement to remove trees.

Before Situation: The site is static or trending to later successional plant community. The disturbance regime to maintain an earlier successional plant community is lacking. Pastures are often monotypic, lacking in diversity. Competition for sunlight from dense grass stands prevents seedling establishment. Stands are often dense and inhibit the movements of young wildlife such as game bird chicks. Area lacks diversity in the height of vegetation.

After Situation: Early successional habitat maintained. Mowing has provided more sun light for forb establishment. The heterogeneity of the habitat structure has been increased.

647 - Disking

Unit Type = Ac

Payment Rate, \$68.44, HU \$82.13

Description: This practice addresses inadequate wildlife habitat for species requiring early successional habitat. This scenario provides early successional habitat by setting back succession and manipulating species composition by disking vegetation and creating bare ground. The setting for this scenario is at the edge of crop fields, in pastures, and in odd areas such as pivot corners. This scenario is applicable nationwide. Where the management of woody plants is required to create or maintain early successional habitat conservation practice 314 brush management or 666 forest stand improvement should be used. Where chemical control of weeds, including invasives, is required to reduce competition for the desired plant community conservation practice 315 herbaceous weed control should be used. Where the seed bank is inadequate for natural regeneration and seeding is required, use conservation practice 550 range seeding or 327 Conservation Cover. Where the need is to create early successional habitat within or at the edge of woodland or forest use conservation practice 666 forest stand improvement to remove trees.

Before Situation: The site is static or trending to higher successional plant species. The disturbance regime to maintain a lower successional stage is lacking. Pastures are often monotypic, lacking in diversity. Bare ground for seedling establishment is absent. Stands are often dense and inhibit the movements of younger wildlife species such as game bird chicks.

After Situation: The application of this scenario improves wildlife habitat for species requiring early successional plant communities by reducing competition and creating bare ground for the establishment of early successional plants. Additionally, brood rearing habitat is improved both by the resultant food resources and the increased openness of the plant community that allows chicks to negotiate the terrain and exploit those food resources.

649 – Structures for Wildlife**649 - Nesting Box, Small no pole**

Unit Type = Ea

Payment Rate, \$30.49, HU \$36.59

Description: A structure is provided to support the nesting and rearing of smaller targeted species, such as bees and birds, and is directly mounted to a tree, building or other structure.

Before Situation: The area lacks sufficient nesting habitat sites (natural cavities). A suitable location to mount the box is available.

After Situation: The installation of nesting and rearing boxes support the life-cycle needs of targeted species, such as birds, bats and pollinators. These structures/features enhance habitat, cover, and improve species survivability.

649 - Nesting Box, Small, with wood pole

Unit Type = No

Payment Rate, \$45.72, HU \$54.86

Description: Constructing a nest box and mounting on a pole. A structure is provided to support the nesting and rearing of targeted species, such as pollinators and birds. Trees, buildings or other structures are not available. These structures are designed to meet targeted species biology and life history needs.

Before Situation: This area lacked sufficient nesting sites to support viable populations of targeted species. Location and conditions suggest that predator guards are not needed.

After Situation: The installation nesting and rearing boxes support the life-cycle needs of targeted species, such as blue birds and waterfowl. Location and conditions suggest that predator guards are not needed. These structures/features enhance habitat, cover, and improve species survivability.

649 - Nesting Box, Large

Unit Type = Ea

Payment Rate, \$61.28, HU \$73.54

Description: A structure is provided to support the nesting and rearing of larger targeted species such as waterfowl, bats and barn owls, and is directly mounted to a tree, building or other structure. These structures are designed to meet targeted species biology and life history needs.

Before Situation: The area lacks sufficient overall habitat conditions to support viable populations of targeted species. A suitable location to mount the box is available. Predator guards not needed.

After Situation: The installation of nesting and rearing boxes support the life-cycle needs of targeted species, such as birds, bats and pollinators. Because of suitable location and conditions the nesting box can be directly mounted such as on a tree or building, thereby eliminating the need for mounting poles and predator guards. Species such as cavity dwelling birds and pollinators use this approach, but this treatment is not limited to those species. These structures/features enhance habitat, cover, and improve species survivability.

649 - Nesting Box or Rapture Perch, Large, with Pole

Unit Type = Ea

Payment Rate, \$271.73, HU \$326.07

Description: Constructing a nest box or rapture perch on a steel pole with a predator guard where needed. A structure is provided to support the nesting and rearing of larger targeted species such as wood ducks, bats, barn owls or to provide needed perches or nesting structures for raptures.

Before Situation: The area lacks sufficient overall nesting sites to support viable populations of targeted species. Predator guards provide needed protection of target species during nesting and rearing.

After Situation: The installation of pole mounted nesting and rearing boxes support the life-cycle needs of targeted species, such as bats and waterfowl.

649 - Escape Ramp

Unit Type = Ea

Payment Rate, \$25.97, HU \$31.17

Description: Retrofit an existing watering trough/tank with an appropriately designed and installed wildlife escape ramp to reduce wildlife mortality and maintain water quality within the watering facility.

Before Situation: Existing watering facilities lack escape potential for wildlife. This results in death of the small wildlife accessing the facility for water, and resulting poor water quality as the animal decays.

After Situation: Watering facilities provide wildlife safe access. Water quality is improved within the watering facility and wildlife mortality is reduced.

649 - Fence Markers, Vinyl Undersill

Unit Type = Ft

Payment Rate, \$0.1, HU \$0.12

Description: Existing fences are retrofitted with vinyl markers that increase wire visibility and reduce mortality due to collision for wildlife species of concern. Markers are installed approximately every 3 feet along top wire.

Before Situation: Wire fences located in high risk areas pose a collision threat to wildlife of special concern.

After Situation: Fence related mortality of species of special concern is reduced.

649 - Brush Pile - Small

Unit Type = Ea

Payment Rate, \$22.64, HU \$27.16

Description: Small brush piles are created to provide shrubby/woody escape cover for wildlife. Pushing or cutting of select small trees and placement in selected locations to provide wildlife cover, structure covered by interlocking limbs of trees less than 12 inches in diameter.

Before Situation: The existing habitat lacks escape, ground nesting and safe loafing cover.

After Situation: Small brush piles provide needed escape, ground nesting and safe loafing cover for targeted wildlife species.

649 - Brush Pile - Large

Unit Type = Ea

Payment Rate, \$94.45, HU \$114.54

Description: Downed tree structures are created to provide shrubby/woody escape cover for wildlife. Existing sod will be killed prior to placement of tree structures. Felling of select trees and placement in selected locations to provide wildlife cover, structure covered by interlocking limbs of trees at least 12" in diameter.

Before Situation: The existing habitat lacks escape, ground nesting and safe loafing cover.

After Situation: Large brush piles provide needed escape, ground nesting and safe loafing cover for targeted wildlife species.

649 - Raptor Perch Pole

Unit Type = Ea

Payment Rate, \$430.34, HU \$516.41

Description: A structure is provided to improve wildlife habitat by providing a raptor perch. These structures are designed to meet targeted species biology and life history needs.

Before Situation: These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Insufficient perch locations are available.

After Situation: The installation of a raptor perch pole enhances the overall habitat needs of targeted species. These structures/features enhance habitat and improve species survivability.

649 - Burrowing Owl Burrow

Unit Type = Ea

Payment Rate, \$285.54, HU \$342.65

Description: A structure is provided to improve wildlife habitat by providing a burrowing owl burrow. These structures are designed to meet targeted species biology and life history needs. Two nesting locations are provided per site. Each nesting site has two points of access. The two nest locations may also be connected.

Before Situation: These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Insufficient natural burrow locations are available.

After Situation: The installation of a burrowing owl burrow enhances the overall habitat needs of targeted species. These structures/features enhance habitat and improve species survivability.

649 - Lunkers

Unit Type = Ea

Payment Rate, \$2102.64, HU \$2523.17

Description: A structure is provided to improve aquatic habitat by providing alternative cover when natural cover is not readily available. These structures are designed to enhance habitat by simulating an overhanging/undercut bank. The resulting cavity provides cover and temperature attenuation to support aquatic organism biology and life history needs. A structure made of wood is placed at the toe of a slope on a rock base. The structure is then weighted with rock and covered.

Before Situation: These structures are targeted for areas that lack sufficient cover and overall habitat conditions to support the life cycle needs of numerous aquatic organisms.

After Situation: The installation of lunkers, typically in groups of three, provide improved cover. These structures improve species survivability by providing cover and temperature attenuation. Structures are typically located downstream of the apex of a bend to promote flow through the structure and minimize deposition of sediments.

649 - Brush and Rock Piles

Unit Type = Ea

Payment Rate, \$19.7, HU \$23.64

Description: A brush pile or rock pile provides improved wildlife habitat by providing resting and escape cover. These structures are located and constructed to meet targeted species biology and life history needs. Stumps, logs, rocks and pipes are placed at the bottom with limbs and leaves placed on top, thereby allowing easy access to the bottom of the pile. These piles can provide nesting habitat, resting areas, concealment, and protection from some predators for birds, rabbits, and other small mammals. Rock piles provide shelter and basking areas for amphibians and reptiles such as frogs, lizards, salamanders and snakes. Large rocks are typically placed at the bottom. Often depressions are dug in the ground surface and covered with flat rocks to create temporary pools for breeding frogs and salamanders. Rocks absorb heat in the day and radiate heat at night. Materials for brush and rock piles are collected locally.

Before Situation: These structures are targeted for areas that lack sufficient overall habitat conditions to support viable populations of targeted species. Insufficient ground cover is available for resting, basking, and escape cover. Existing brushy cover is lacking or not well distributed.

After Situation: The installation of a brush piles and rock piles enhances the overall habitat needs of numerous terrestrial species. These structures/features enhance habitat and improve species survivability. By providing resting, basking, and escape cover, larger open spaces are more effectively used by ground nesting birds, amphibians, reptiles, and small mammals. Increased cover reduces predation.

649 - Nesting Islands (set of 3)

Unit Type = Ea

Payment Rate, \$3229.27, HU \$3875.12

Description: This practice involves constructing, maintaining, and monitoring loafing structures to provide nesting/loafing cover for water birds, reptiles, and amphibians. This practice applies to croplands grown to rice or other flooded cropland capable of water level management. A habitat appraisal guide has identified that nesting/loafing cover is a limiting factor for shorebirds, water birds, waterfowl, or other wetland wildlife and where natural recovery of that habitat element is either unlikely or will take many years to naturally develop. Vegetated areas can be used for breeding waterfowl; encourage non-vegetated areas for breeding shorebirds.

Before Situation: This practice applies to croplands grown to rice or other crops capable of being managed for shallow water management objectives, where a habitat appraisal guide has identified that nesting/loafing cover is a limiting factor for shorebirds, water birds, waterfowl, or other wetland wildlife and where natural recovery of that habitat element is either unlikely or will take many years to naturally develop.

After Situation: 3 islands constructed to a minimum of 800 SqFt above the waterline with slopes of between 8:1 and 10:1 with a one foot freeboard. There will be one created island per 10 acres. Three island minimum per project. Creating islands provides suitable nesting/ loafing areas within the flooded agricultural fields and offsets the lack of protected uplands for nesting or loafing shorebirds, waterfowl, reptiles, and amphibians.

649 - Snag Creation

Unit Type = Ea

Payment Rate, \$17.48, HU \$20.97

Description: Create snags from existing live trees to provide nesting, foraging, perching, thermal cover, and display habitat for target species such as cavity nesting birds (woodpeckers, songbirds, wood duck, etc), small mammals (shrew, chipmunk, flying squirrel, bats, etc.), amphibians and reptiles and bumble bees. Trees must be at least 12" DBH. Resulting snag will be a minimum of 25' tall. Snag creation methods may include girdling, chemical injection, or high topping.

Before Situation: These structures are targeted for areas that lack sufficient snag habitat conditions to support viable populations of targeted species. Insufficient cavity nests, foraging, and perching habitat exists on the planning unit. Existing snag habitat is lacking or not well distributed.

After Situation: Snag creation enhances the overall habitat condition for numerous terrestrial species. These structures/features enhance habitat and improve species survivability. By providing cavity nesting sites, invertebrate foraging area, perching/hunting opportunities, and thermal cover/escape cover, larger open spaces are more effectively used by cavity nesting birds and pollinators, amphibians, reptiles, and small mammals. Increased cover reduces predation.

657 – Wetland Restoration

657 - Riverine Levee Removal and Floodplain Features

Unit Type = Ac

Payment Rate, \$276.77, HU \$332.12

Description: A Riverine HGM tract on a large floodplain is to be restored. It has been converted to agricultural production by surface ditching and clearing of woody vegetation.

Before Situation: A levee prevents floodwater from entering the tract. The original cover was forest. The site is drained by surface ditches which collect surface water and direct it to the river through a flap gate structure. The site has been completely cleared, and no suitable adjacent seedwall exists for natural regeneration of forest species. The lateral connectivity between the channel and floodplain has been altered by construction of levees along the reach.

After Situation: The hydrology of the site is restored with the installation of ditch plugs, and the excavation of macrotopographic features with an average depth of 6" over 30% of the wetland area. Excavated spoil is placed adjacent to the features on the wetland and adjacent non-wetland area with a maximum depth of 24 inches. The levee has been breached at the upstream and downstream ends of the tract reach, restoring dynamic stream flooding. The breach length is 150 feet long at both locations. Both the wetland and non-wetland areas are planted with a Bottomland Hardwood species mix. The levee breaches are armored with rock riprap. Facilitating practices include Grade Stabilization Structure and Tree and Shrub Planting. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

657 - Depression Sediment Removal and Ditch Plug

Unit Type = Ac

Payment Rate, \$931.15, HU \$1117.38

Description: A Depressional HGM class wetland is to be restored. The site is a recharge depression, fed only from surface runoff.

Before Situation: The wetland has been converted to agricultural production, and the tract drained with a surface ditch. The ditch is 4' average depth, and 12 feet average width. The wetland receives surface runoff from an adjacent upland watershed, and ponds water on a shallow perched layer. The watershed has been converted from native to agricultural land use, and the resultant soil erosion has deposited 6" of sediment in the bottom of the depression.

After Situation: The ditch has been plugged by the installation of a 50' long section of compacted clay fill, and the deposition has been removed down to the original topsoil layer. A herbaceous plant community has been seeded. Facilitative practices include Conservation Cover. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

657 - Riverine Channel and Floodplain Restoration

Unit Type = Ac

Payment Rate, \$371.33, HU \$445.6

Description: A Riverine HGM landscape on a small stream on a low stream order riparian landscape has been converted to agricultural production. The stream channel has degraded.

Before Situation: Channel incision has broken the lateral connectivity between the stream and floodplain. The conversion to cropland was accompanied by filling and leveling of back swamp, side channel, and oxbow features which formerly ponded water or exposed the floodplain groundwater table. The site no longer has access to floodwater or water surface profile supported groundwater. No suitable seed bank exists for natural regeneration of the original hydrophytic plant community, either in the channel, or on the floodplain.

After Situation: The hydrology of the site is restored by the installation of a series of rock check structures to raise the stream water surface profile. Floodplain macrotopographic features replicating the original side channels, oxbows, and backswamps are constructed by excavation. Spoil is placed adjacent to the excavations to replicate natural depositional features. The average depth of the excavated features is 2 feet, and the surface area of the excavations is 25% of the tract size. The eroding stream bank is stabilized with soil bio-engineering features, and fish habitat improvement measures are installed in the channel. The tract is seeded to appropriate hydrophytic and upland vegetation, both woody and herbaceous. Facilitating practices are Streambank and Shoreline protection, Structure for Water Control, Conservation Cover, Tree/Shrub Establishment, and Stream Habitat Improvement and Management. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

658 – Wetland Creating

658 - Wetland Creation, Wildlife Pond

Unit Type = Ac

Payment Rate, \$2577.14, HU \$3092.56

Description: A wetland is created on a flat mineral upland at a location where surface runoff may be intercepted and ponded by excavation.

Before Situation: The site is in cropland on an upland, non-floodplain site (interfluvial).

After Situation: An excavation with an average depth of 12" has created a shallow depression in a broad swale which intercepts surface runoff. The excavated material has been spread on adjacent areas.

659 – Wetland Enhancement

659 - Riverine Levee Removal and Floodplain Features

Unit Type = Ac

Payment Rate, \$303.74, HU \$364.49

Description: A Riverine HGM tract on a large floodplain is to be enhanced. It has been converted to agricultural production by surface ditching and clearing of woody vegetation.

Before Situation: A levee prevents floodwater from entering the tract. The original cover was forest. The site is drained by surface ditches which collect surface water and direct it to the river through a flap gate structure. The site has been completely cleared, and no suitable adjacent seedwall exists for natural regeneration of forest species. The lateral connectivity between the channel and floodplain has been altered by construction of levees along the reach.

After Situation: The hydrology of the site is enhanced with the installation of ditch plugs, and the excavation of macrotopographic features with an average depth of 6" over 30% of the wetland area. Excavated spoil is placed adjacent to the features on the wetland and adjacent non-wetland area with a maximum depth of 24 inches. The levee has been breached at the upstream and downstream ends of the tract reach, restoring dynamic stream flooding. The breach length is 150 feet long at both locations. Both the wetland and non-wetland areas are planted with a Bottomland Hardwood species mix. The levee breaches are armored with rock riprap. Facilitating practices include Grade Stabilization Structure and Tree and Shrub Planting. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

659 - Depression Sediment Removal and Ditch Plug

Unit Type = Ac

Payment Rate, \$875.96, HU \$1051.15

Description: A Depressional HGM class wetland is to be enhanced. The site is a recharge depression, fed only from surface runoff.

Before Situation: The wetland has been converted to agricultural production, and the tract drained with a surface ditch. The ditch is 4' average depth, and 12 feet average width. The wetland receives surface runoff from an adjacent upland watershed, and ponds water on a shallow perched layer. The watershed has been converted from native to agricultural land use, and the resultant soil erosion has deposited 6" of sediment in the bottom of the depression.

After Situation: The ditch has been plugged by the installation of a 50' long section of compacted clay fill, and the deposition has been removed down to the original topsoil layer. A herbaceous plant community has been seeded. Facilitative practices include Conservation Cover. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

659 - Riverine Channel and Floodplain Restoration

Unit Type = Ac

Payment Rate, \$339.72, HU \$407.66

Description: A Riverine HGM landscape on a small stream on a low stream order riparian landscape has been converted to agricultural production. The stream channel has degraded.

Before Situation: Channel incision has broken the lateral connectivity between the stream and floodplain. The conversion to cropland was accompanied by filling and leveling of back swamp, side channel, and oxbow features which formerly ponded water or exposed the floodplain groundwater table. The site no longer has access to floodwater or water surface profile supported groundwater. No suitable seed bank exists for natural regeneration of the original hydrophytic plant community, either in the channel, or on the floodplain.

After Situation: The hydrology of the site is restored by the installation of a series of rock check structures to raise the stream water surface profile. Floodplain macrotopographic features replicating the original side channels, oxbows, and backswamps are constructed by excavation. Spoil is placed adjacent to the excavations to replicate natural depositional features. The average depth of the excavated features is 2 feet, and the surface area of the excavations is 25% of the tract size. The eroding stream bank is stabilized with soil bio-engineering features, and fish habitat improvement measures are installed in the channel. The tract is seeded to appropriate hydrophytic and upland vegetation, both woody and herbaceous. Facilitating practices are Streambank and Shoreline protection, Structure for Water Control, Conservation Cover, Tree/Shrub Establishment, and Stream Habitat Improvement and Management. Restoration of hydrology and plant community functions will improve the WATER QUALITY and DEGRADED PLANT CONDITION concerns listed above. The hydrologic and vegetative practices will address the SOIL QUALITY DEGRADATION and INADEQUATE HABITAT FOR FISH AND WILDLIFE concerns.

666 – Forest Stand Improvement

666 - Intermediate Silvicultural Rx's Using Mastication Equipment on all slopes

Unit Type = Ac

Payment Rate, \$163.86, HU \$196.63

Description: Adjusting the density, species composition, and spatial arrangement with intermediate silvicultural techniques to achieve the desired condition in a stand of trees. The operation is supervised by a certified forest planner and/or certified TSP forester. This action and is carried out using light to medium mastication equipment, that is suited to the site and job .

Before Situation: The density, species composition, and spatial arrangement of trees in a stand are close to achieving the silvicultural specifications, but still require management to achieve desired conditions. The stand in this scenario still exhibit an increased susceptibility to insects and disease, an unacceptable uncharacteristic wildfire risk and/or hazard, and degraded understory plant and wildlife conditions.

After Situation: After adjusting the density, species composition, and spatial arrangement to an acceptable level, stand, and overall quality is improved. As an intermediate silvicultural action, the work is not intensive in nature, but meant to quickly and readily improve conditions related to the identified resource concern. Mastication in these stands will not create conditions that artificially inflate the risk of carrying a fire, or degrading understory plant productivity and wildlife habitat.

666 - Intermediate Silvicultural Rx's by Handwork and Light Mechanical Equipment on all slopes

Unit Type = Ac

Payment Rate, \$332.98, HU \$399.57

Description: Adjusting the density, species composition, and spatial arrangement with intermediate silvicultural techniques such as single tree, crop tree, and other light thinning operations to achieve the desired condition in a forested stand. The operation is supervised by a certified forest planner and/or certified TSP forester. This silvicultural prescription is carried out using hand tools such as chainsaws, and light equipment like sheers and grapple on a skidsteer, all of which are suited to the site and job .

Before Situation: The density, species composition, and spatial arrangement of trees in a stand are close to achieving the silvicultural specifications, but still require management to achieve desired conditions. The stand in this scenario still exhibit an increased susceptibility to insects and disease, an unacceptable uncharacteristic wildfire risk and/or hazard, and degraded understory plant and wildlife conditions. Given handwork is done a small scales and usually inoperable sites for ground based logging systems

After Situation: After adjusting the density, species composition, and spatial arrangement to an acceptable level, stand, and overall quality is improved. As an intermediate silvicultural action, the work is not intensive in nature, but meant to quickly and readily improve conditions related to the identified resource concern. and to achieve desired condition.

666 - Intermediate Silvicultural Rx's Silvicultural Rx's Using Ground Based Logging/Heavy Equipment on all slopes

Unit Type = Ac

Payment Rate, \$433.52, HU \$520.22

Description: Minimally adjusting the density, species composition, and spatial arrangement with minor silvicultural intensity to achieve the desired condition in a stand of trees. The operation is supervised by a certified forest planner and/or certified TSP forester. This action and is carried out using light or heavy mastication equipment, that is suited to the site and job .

Before Situation: The density, species composition, and spatial arrangement of trees in a stand are close to achieving the silvicultural specifications, but still require management to achieve desired conditions. The stand in this scenario still exhibit an increased susceptibility to insects and disease, an unacceptable uncharacteristic wildfire risk and/or hazard, and degraded understory plant and wildlife conditions..

After Situation: After adjusting the density, species composition, and spatial arrangement to an acceptable level, stand, and overall quality is improved. As an intermediate silvicultural action, the work is not intensive in nature, but meant to quickly and readily improve conditions related to the identified resource concern. and to achieve desired condition.

666 - Uneven-aged Silvicultural Rx's Using Mastication Equipment on All Slopes

Unit Type = Ac

Payment Rate, \$376.3, HU \$451.56

Description: Mastication will be used to achieve uneven-aged stand structure on all operable ground. Will only be used in select situations where site productivity does not warrant utilization, and will not negatively impact goals associated with understory plant productivity and wildfire hazard.

Before Situation: The density, species composition, and spatial arrangement of trees in a stand are close to achieving the silvicultural specifications, but still require management to achieve desired conditions. The stand in this scenario still exhibit an increased susceptibility to insects and disease, an unacceptable uncharacteristic wildfire risk and/or hazard, and degraded understory plant and wildlife conditions. Large acreages of uniform stand structure, or where undesirable forest structure (species, age, size) that is susceptible to disease and fire. To qualify for mastication with Uneven-aged silvicultural desired conditions, the site cannot have high basal areas, and stems per acre that would be redistributed to the understory, as this will result in heavy surface fuels and obstructions that negate a resource benefit to the identified resource concerns.

After Situation: Create conditions that support regeneration of desired species and densities, with spatial patterns that provide benefits to reduced fire behavior, and early successional wildlife habitat, and understory plant communities. Mastication in these stands will not create conditions that artificially inflate the risk of carrying a fire or change other fire behavior characteristics, or degrading understory plant productivity and wildlife habitat.

666 - Uneven-aged Silvicultural Rx's Using Hand and Light Mechanized Equipment on Slopes Less than 25%

Unit Type = Ac

Payment Rate, \$1099.43, HU \$1319.32

Description: Utilizing light equipment and hand work on accessible ground, to achieve uneven-aged silvicultural practices such as group selection and group retention, free thinning, single tree harvesting, are employed.

Before Situation: The density, species composition, and spatial arrangement of trees in a stand are close to achieving the silvicultural specifications, but still require management to achieve desired conditions. The stand in this scenario still exhibit an increased susceptibility to insects and disease, an unacceptable uncharacteristic wildfire risk and/or hazard, and degraded understory plant and wildlife conditions. Large acreages of uniform stand structure, or where undesirable forest structure (species, age, size) that is susceptible to disease and fire.

After Situation: Create conditions that support regeneration of desired species and densities, with spatial patterns that provide benefits to reduced fire behavior, and early successional wildlife habitat, and understory plant communities. Mastication in these stands will not create conditions that artificially inflate the risk of carrying a fire or change other fire behavior characteristics, or degrading understory plant productivity and wildlife habitat.

666 - Uneven-aged Silvicultural Rx's Using Ground Based Heavy Logging Equipment on Slopes Less than 25%

Unit Type = Ac

Payment Rate, \$1928.93, HU \$2314.71

Description: Utilizing ground based mechanical logging equipment on accessible ground, to achieve uneven-aged silvicultural practices such as group selection and group retention, free thinning, single tree harvesting, are employed.

Before Situation: The density, species composition, and spatial arrangement of trees in a stand are close to achieving the silvicultural specifications, but still require management to achieve desired conditions. The stand in this scenario still exhibit an increased susceptibility to insects and disease, an unacceptable uncharacteristic wildfire risk and/or hazard, and degraded understory plant and wildlife conditions..

After Situation: Create conditions that support regeneration of desired species and densities, with spatial patterns that provide benefits to reduced fire behavior, and early successional wildlife habitat, and understory plant communities. Mastication in these stands will not create conditions that artificially inflate the risk of carrying a fire or change other fire behavior characteristics, or degrading understory plant productivity and wildlife habitat.