Part 613 – Developing Cost Data for Conservation Planning

Subpart E – Exhibits

613.40 Cost Data and Scenario Examples

A. Cost Data

Materials

Critical Area Planting:

Perennial Grass/Clover Seed Mix:

Pounds per Acre: 18
Cost per Pound: $6.00
(White Clover, Annual Rye, Oats)

Fertilizer (placed with seed): $30.00 16-16-16-0, l00lbs/Ac, $.30/Lb. Total Cost: $138.00/Acre

Nutrient Management:

Soil Test $10.00/Acre

Tissue Testing $5.00/Acre

Nutrient Budget $2.00/Acre

Record Keeping $3.00/Acre

Precision Agricultural $10.00/Acre

Tillage of Green Manure $0.50/Acre

Manure Nutrient Testing $0.25/Acre

Use of Overlap Reduction Technologies $5.00/Acre

Dike

Dike Length (Ft): 500

Unit: CuYd

Units/Ln Ft Dike: 2.75

Total Units: 1,375

Total Cost of Materials/CuYd: $10.00

Equipment

Sediment Basin ($/Cubic Yard): Excavation/Fill (bulk earth moving with dozer)

Units Moved per hour: 50

Units: CuYd

Equipment Cost w/o Operator ($/hr.): $90.00

Total Excavation Cost/Unit: $1.80

Pasture Planting: Seedbed Preparation and Seeding = $65.00/Acre

(Data Source: Extension Service Crop Budgets, 2014)

Labor

Fence: 65 percent of Materials & Equipment Costs

Grassed Waterway: Unskilled Labor = $10.00/hr * 2 hrs/acre = $20.00/acre Skilled Labor = $15.00/hr * 1 hrs/acre = $15.00/acre

Conservation Cover: Seedbed Preparation and Seeding: .50 Hours/Acre * $16.00/Hour = $8.00/Acre (Data Source: Extension Service Crop Budgets, 2014)

Mobilization

Pond: 3 percent of Materials, Equipment & Labor Costs

Spring Development: 75 percent of Materials, Equipment & Labor Costs

Operation and Maintenance

Sediment Basin: Five percent of materials, equipment/installation and labor costs. Maintenance Plan

Needed: Inspect embankments and pipe inlets, repair damages, remove debris, mow, fertilize, control noxious weeds and burrowing animals, re-seed, and clean out basin.

Fence: Two percent of materials, equipment/Installation and labor costs. Inspect, repair, check tension, clear brush and fallen limbs.

Acquisition of Technical Knowledge

Prescribed Grazing: Grazing management software and training $500.00/(150AU*12months) = $.28/AUM

Feed Management: Hire a dairy feed nutritionist/consultant = $.05/AU/Day

Pest Management: Hire Professional with Certified Pesticide Application License = $2.00/Acre

Conservation Tillage: Thirty hours land user time (conduct personal research, plan with NRCS) * $20.00/hour = $600.00.

Foregone Income

Field Border: One acre taken out of row crop production. Row crop net income minus hay net income (from occasional hay harvest from field border). Net Income = $200.00/Acre/Year

Use Exclusion: One acre grazing land taken out of production, two AUMs/Acre/Year at $15.00/AUM = $30.00/Acre/Year

Grass Waterway: Installed using 0.5 acres of corn field. Corn Revenue = $5.00/bu*100 bu/ac*0.5 acre = $250.00 on 0.5 acres. Corn Production Costs=$2.00/bu*100 bu/ac*0.5 acre = $100.00 on 0.5 acres. Foregone Net Income for 0.5 acres of Corn = $150.00 ($250.00 - $100.00). If Payment Unit is "acre," then Foregone Income = $300.00/acre.

Risk

Residue Management: Increased risk with change in tillage system, 10 percent chance of 20-percent reduction in grain production 60 Bushels/Acre * $2.50/Bu * 10 percent * 20 percent = $4.80/Acre/Year (first 3-4 years in grain)

Expected Value Equation: Expected value can be used to estimate the Risk cost category. Expected Value = [Probability of an event happening] * [Value of the event when it happens]. For example, the expected value of a cover crop failing = [Probability of a cover crop failure] * [Cost of replanting after the cover crop fails]. If probability = 3 percent, and replanting cost = $30.00/acre, then the expected value = [0.03] * [$30.00/acre] = $0.90/acre.

Administration and Permit Costs

Animal Waste Storage Structure: Paperwork required to design and meetings with engineers = $500/165,000CuFt Storage = $.003/CuFt.

Building permit required $1,000/165,000CuFt Storage = $.006/CuFt

Cost Data Source References

Coastline Construction Company, Incorporated, Tillamook, Any State 503-555-1234, July 2014

Mid-West Grain Growers, Any State, April 2013

American Society of Agricultural Engineers Standards 2013, Standards Engineering Practices Data

Engineering News Record, www.enr.com, April 2014

EQIP Contract #12345, Animal Waste Storage Structure, Middleton County, Any State, September 2013

Any State Department of Forestry, Personnel Communication with Regional Forester, 2013.

B. Practice Scenario Examples

Terrace (600) Cost Data

Typical Implementation Scenario
320 acre field, wheat/fallow rotation, relatively steep slopes with sheet & rill and concentrated flow erosion.
Level terrace.
An earth embankment, a channel, or a combination ridge and channel constructed across the slope.

Geographic Area:	Statewide	
Unit for Cost Estimate:	Foot	
Practice Life (Years):	10	
Discount Rate (%/Year):	5%	**Cost/Unit**
Materials		$0.00
No Cost		
Equipment/Installation		$2.69
Excavation/Fill (bulk earth moving with D8-Dozer)		
Units Moved per hour:	130	
Units	CuYd	
Equipment Cost w/Operator ($/Hr)	$140	
Total Excavation Cost/Unit:	$1.08	
Units Moved per LnFt Terrace:	2.50	
Total Excavation/Fill Cost:	$2.69	

Data Source: NRCS Engineering Technician & Local Contractor Data, Anywhere, State 3/2010. KC Construction, Anywhere, State. 4/2010. COE - Region VIII Construction Equipment Ownership and Operating Expense Schedule, 2009

Labor	$0.00
Excavation/Fill (bulk earth moving with road grader) (Included in Equipment/Instillation Costs)	
Mobilization	$0.13
5% of Materials, equipment and labor costs.	
Operation & Maintenance (Annual)	$0.05
2% of Installation Costs	
Acquisition of Technical Knowledge	$0.00
No Cost	
Forgone Income (Annual)	$0.00
Minimal to no land taken out of production.	
Risk (Annual)	$0.00
No Cost	
Administration & Permit Costs	$0.00
No Cost	
Total Cost Estimate:	$2.88

Associated Practices:
516-Pipeline, 342-Critical Area Planting, 620-Underground Outlet

Brush Management (314) Cost Data

Typical Implementation Scenario

This management practice is for Brush Management, mechanical treatment on rangeland, native or natural pasture and hayland that the primary vegetation is sagebrush and/or rabbit brush. The practice entails the eradication of sagebrush and/or rabbit brush by use of mower, brush hog, disc or other mechanical means in order to promote forage productivity and improve ecological condition. Slopes are moderately level to genally rolling, moderately deep to deep fine to coarse testured soils types on 80 acres.

Removal, reduction, or manipulation of non-herbaceous plants.

Geographic Area: Statewide
Unit for Cost Estimate: Acre
Practice Life (Years): 10
Discount Rate (%/Year): 5%

Cost/Unit

Materials $90.00

Equipment & Operator/Labor	Units/Acre	$/Unit	Total
5-Foot Mower (Hrs)	0.75	$40.00	$30.00
Brush Hog (Hrs)	1.25	$40.00	$50.00
Monitoring (Hrs)		$10.00	$0.00
4-Wheeler/Pickup Truck (Hrs)	1.00	$10.00	$10.00
Total:			$90.00

Data Source: Producer receipts, Anycounty, State, 2010.

Equipment/Installation $0.00
Included in Material Costs

Labor $0.00
Included in Material Costs

Mobilization $4.50
Five percent of materials, equipment/Installation and labor costs

Operation & Maintenance $0.90
Spot treatment missed or re-growth areas.
One percent of materials, equipment/Installation and labor costs

Acquisition of Technical Knowledge $0.00
No Cost

Forgone Income $0.00
Possible short term production loss in treated fields

Risk $0.00
No Cost

Administration & Permit Costs $0.00
No Cost

Total Cost Estimate: **$95.40**

Associated Practices:
338-Prescribed Burning, 342-Critical Area Planting, 327-Conservation Cover, 550- Range Planting, 472-Use Exclusion

Nutrient Management (590) Cost Data

Typical Implementation Scenario

The nutrient management practice scenario is for irrigated cropland, and nurseries or orchards that are irrigated or non-irrigated. The landowner must maintain records for 3 or more years depending on the intensity of the management. A soil test is required with in 3 to 5 years and Irrigation water management is used to facilitate in the management of applied nutrients. If animal manure is applied to a field, a CNMP is required.

Soil test or tissue test, nutrient budget, and record keeping; which consists of crop grown, anticipated and actual yields, types and quantities of nutrients applied (including animal waste) and dates of application..

Managing the amount, source, placement, form and timing of the application of nutrients and soil amendments.

Geographic Area:	Statewide	
Unit for Cost Estimate:	Acre	
Practice Life (Years):	1	
Discount Rate (%/Year):	5%	**Cost/Unit**
Materials		$30.00
Soil test	$10/Acre	
Tissue testing	$5/Acre	
Nutrient budget	$2/Acre	
Record Keeping	$3/Acre	
Precision agricultural (consultant)	$10/Acre	
Chemi-gation plan	$.50/Acre	
Manure Nutrient Testing	$.25/Acre	
Convert to "Organic" Fertilizers (Non-Petroleum Based Fertilizers)	$5/Acre	
Use of Overlap Reduction Technologies	$5/Acre	
Organic Certification process	$5/Acre	

Source: Crop advisory board, Ag-Coop, Anytown, State, 2010

Equipment/Installation $0.00
Equipment incorporated into materials cost

Labor $0.00
Labor incorporated into materials cost

Mobilization $0.00
No Cost

Operation & Maintenance (Annual) $0.00
No Cost

Acquisition of Technical Knowledge $0.00
Education incorporated into materials cost

Forgone Income (Annual) $0.00
No land taken out of production, no lost opportunity costs

Risk $0.00
Possible reduced risk, crop yield increase, reduced water quality damages

Administration & Permit Costs $0.00
No Cost

Total Cost Estimate: **$30.00**

Associated Practices:
449-Irrigation Water Management, 595-Pest Management, 633 Waste Utilization

613.41 Cost Data Quality Review Worksheet

Practice/Activity name: State/Location:

Code Number: Contact Person:

File Name: Phone:

Cost Data

- ☐ Worksheet links, calculations are correct.
- ☐ Each practice is supported by a comprehensive scenario.
  - ☐ Scenario description and cost items meet the practice standards.
  - ☐ Scenario can be realistically implemented and meets practice standards.
  - ☐ Scenario identifies common facilitating practices.
- ☐ Geographic area is clearly defined and identified.
- ☐ Cost estimate "Unit" is simplest unit for cost estimating.
- ☐ Practice "Life Span" identified.
- ☐ Discount rate meets criteria in Economic Handbook.
- ☐ Cost data identified in nine cost categories (some may have a $0 cost).
- ☐ Only one "subtotal" cost estimate for each of the nine cost categories.
- ☐ Cost data source, location and date adequately documented.
- ☐ Cost data and methodology are adequate.
  - ☐ Materials
  - ☐ Equipment/Installation
  - ☐ Labor
  - ☐ Mobilization
  - ☐ Operation and Maintenance*
  - ☐ Acquisition of Technical Knowledge
  - ☐ Foregone Income*
  - ☐ Risk*
  - ☐ Administration and Permit Costs

  ***** Identified and estimated as “annual” costs.

Comments:

Actions Required:

Overall Review Results:

Meets	Does Not Meet	Quality Standard
		Adherence to cost data methodology
		Use of practices consistent with practice standards

Reviewers:

Date: