Pennsylvania NRCS

Conservation Planning and Regulatory Compliance Handbook

Conservation Planning and Regulatory Compliance Handbook

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Pennsylvania NRCS

Conservation Plan Folder Requirements

Black– Include in NRCS Case File and Customer Folder

***Green**– Include in NRCS Case File ONLY*

Conservation Plan Document

Business/Customer Information

- ☐ Owner/Operator Name
- ☐ Mailing Address
- ☐ Telephone Number

☐ **Objective Statement**

Record of Customer's Decision

- ☐ Implementation Schedule
- ☐ Site Specific Narrative Statements
- ☐ Operation and Maintenance Statements

☐ **Standard Statement**

Signature Block

- ☐ Customer
- ☐ Certified Planner
- ☐ Conservation District (If Applicable)

Mapping Requirements

All Maps Contain:

- ☐ Title Block Showing:
  - ☐ Map Title
  - ☐ Name of Conservation District, County, and State
  - ☐ Customer's Name
  - ☐ Date Map Prepared
  - ☐ FSA Farm and Tract number
  - ☐ Planner's Name (Optional)
- ☐ Scale Bar
- ☐ Map Legend

Required Maps

- ☐ **Location Map** (If Applicable)
- ☐ **Conservation Plan Map Showing:**
  - ☐ Field and Tract Boundaries
  - ☐ Field Labels
    - Field Numbers
    - NRCS Land Use Designation
    - Field Acreage
    - HEL Determination
  - ☐ Road Names
  - ☐ Waters of the Commonwealth
  - ☐ Location of all Known Utilities
  - ☐ Conservation Practices (Existing and Planned)
- ☐ **Detail Maps** (As Needed)
- ☐ **Soils Map Showing:**
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  - ☐ Soil Polygons
  - ☐ Map Unit Symbols
- ☐ **Topographic Map**

Pennsylvania NRCS

Conservation Plan Folder Requirements (Cont.)

Land Use Requirements

All Land Uses

☐ Identify Treatment and Management of:

- Gully Erosion
- Near-Stream Areas
- Areas of Animal Concentration

Cropland/Hayland

☐ **328, 512,** or other management practices

RUSLE 2 Calculations (Cropland Only)

☐ Plan View Printout

☐ Management View Printout

Pasture

☐ 528

☐ Prescribed Grazing Documentation

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☐ CNMP (if applicable)

Supporting Documentation

Job Sheets (As Needed)

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Environmental Compliance

☐ *Environmental Evaluation (NRCS-CPA-52)*

☐ *Cultural Resources Review Worksheet with E-Mail Verification*

☐ *PNDI Project Environmental Review Receipt*

National Food Security Act Compliance *(If Applicable)*

('Highly Erodible Land Compliance'/ 'Wetland Compliance')

☐ *AD-1026*

☐ *Farm Producer Data Report*

☐ *NRCS-CPA-026E*

☐ *NRCS-CPA-027*

More Information

For questions regarding conservation planning or required documentation, please contact:

Gwendolyn Crews
(717) 237-2218
gwendolyn.crews@pa.usda.gov

July 2011

Pennsylvania NRCS

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RUSLE 2 Calculations (Cropland Only)

- ☐ Plan View Printout
- ☐ Management View Printout

Pasture

- ☐ 528
- ☐ Prescribed Grazing Documentation

Headquarters

- ☐ CNMP (if applicable)

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(717) 237-2218
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Supporting Documentation

Job Sheets (As Needed)

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- ☐ ***Assistance Notes*** *(NRCS-CPA-6)*

Environmental Compliance

- ☐ *Environmental Evaluation (NRCS-CPA-52)*
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- ☐ *NRCS-CPA-026E*
- ☐ *NRCS-CPA-027*

July 2011

Intro.

United States Department of Agriculture

NRCS
Natural Resources
Conservation Service

One Credit Union Place, Suite 340
Harrisburg, PA 17110-2993
717-237-2100; fax 717-237-2238

July 28, 2011

Dear Conservation Planner,

I would like to present you with this Conservation Planning and Regulatory Compliance Handbook. While official policies and guidance are maintained in the online directives and field office technical guide (FOTG) systems, this handbook is intended to help you find quick reference to the items you most frequently use.

As you know from your conservation planning guiding principles, knowledge is incomplete; change is constant; and the planning process is dynamic. As science discovers new understandings and governments change their regulations, conservation planners use this new information to help decision makers adapt it to their situation.

Over the winter, NRCS State Office support staff members have worked with Area and Field Office conservationists and experts at the State Conservation Commission, the Pennsylvania Department of Environmental Protection, Pennsylvania Department of Agriculture, Penn State University, Conservation Districts, and many other partnering organizations to develop guidance relevant to recent changes in erosion and sediment control requirements.

Navigating the many laws and regulations of each of the layers of government is time consuming and confusing. As conservationists, it is our duty to make sure the assistance we provide addresses the requirements of all relevant laws and regulations. This book has been organized into typical planning and land use topic areas to assist you in making sense of the State's new regulation changes. Blank tabs have been provided in the handbook for your convenience to insert materials you may have already collected and frequently use. When support staff members develop guidance for other planning and regulatory topics, new tabs will be provided to add to the handbook.

Thank you for helping farmers better understand the landscape, comply with relevant regulations, and make decisions to conserve natural resources for future generations.

Denise Coleman

DENISE COLEMAN
State Conservationist

NRCS

Natural Resources Conservation Service
One Credit Union Place, Suite 340
Harrisburg, Pennsylvania 17110-2993
Ph. (717) 237-2100 Fax: (717) 237-2238

PENNSYLVANIA BULLETIN NO. PA450-11-1 DATE: July 28, 2011

SUBJECT: TCH – NRCS Efforts to Help Farmers Understand State Environmental Compliance Requirements

ACTION REQUIRED: Immediate implementation.

PURPOSE: To provide direction and guidance to NRCS field offices and partnering conservation planners on helping farmers understand regulatory requirements of Chapter 102 under Title 25 Environmental Protection of Pennsylvania's Code and as authorized by the Clean Streams Law P.L 1987, Act 394 of 1937, as amended.

EXPIRATION DATE: July 28, 2012

Background: On November 19, 2010, DEP published revisions to Chapter 102 Erosion and Sediment Control and Stormwater Management regulation. Section 4(a) of Chapter 102 identifies erosion and sediment control requirements for agricultural plowing or tilling activities and for animal heavy use areas.

In response to the revisions to Chapter 102, PA NRCS has developed guidance to ensure consistency between NRCS conservation planning efforts and the requirements of Chapter 102.

Directions: In order to assist the conservation partnership's effort to provide a clear and consistent message regarding agricultural producer's responsibilities to comply with State environmental regulations, NRCS will undertake the following efforts:

General Customer Service

- When meeting with customers, NRCS staff will inquire as to their awareness of environmental regulations applicable to agricultural activities and offer the brochure "Agricultural Environmental Regulations: Am I In Compliance?" (January 2011) to those who have not already received one.
- NRCS staff will clearly explain to customers what assistance will be provided, on which areas of the property, and identify the areas not being addressed by NRCS during the request. Customers may need to request assistance from Conservation District or private consultants to address remaining parts of the farm not covered by NRCS assistance.
- Conservation Planners employed by NRCS or partner planners working on behalf of NRCS will utilize the **PA NRCS Conservation Planning Guidance** as references to help ensure that all plans are thorough and meet the level of planning requested by the customer. The guidance helps conservation planners ensure technical adequacy, administrative completeness, and consistency among planners. The PA NRCS Conservation Planning Guidance document will NOT be recorded as part of the NRCS case file or provided with the customer's conservation plan copy.

- For communicating conservation plan requirements and assuring high-quality assistance, use the Conservation Plan Requirements brochure at meetings, the poster at the office, and the laminated guide outside in the field.
- Planners will review the conservation plan with customers to ensure the customer understands the documentation of existing practices and the new practices scheduled to be applied. The planner will also explain the level of treatment for each of the natural resource concerns that will be addressed by applying the practices.
- All Conservation Planners will provide a copy of a topographic map of the planned area as required by the Chapter 102 regulation.

"T" Over the Rotation

- NRCS staff will make the customer aware that to comply with Pennsylvania Chapter 102 regulations pertaining to Erosion and Sedimentation Control, he/she must maintain the Tolerable Level (T) soil loss rate over the field crop rotations and all treat gullies.
- When NRCS develops a conservation plan for a customer participating in a program covered by the Food Security Act, NRCS staff will explain the Highly Erodible Land Conservation Compliance requirements. On fields subject to the Act that are used to produce an agricultural commodity prior to December 23, 1985 sheet and rill erosion levels must be reduced at a minimum to 75 percent of the potential erodibility of the field, not to exceed two times the soil loss tolerance level (2T) for the predominant highly erodible soil map unit and all ephemeral gully erosion must be treated. In the case of land with no cropping history, the erosion level will not exceed the soil loss tolerance level (T) and will treat all gullies.
- All conservation plans written henceforth will now include a **Standard Statement** identifying whether the predicted soil loss rate for the selected (preferred) alternative will meet (T) and if the plan treats gullies OR if the rate exceeds (T) but is still within compliance of the Highly Erodible Land Conservation provisions where applicable OR if the rate exceeds (T) on lands not subject to the requirements of the Food Security Act.
- The narrative or referenced **job sheet for practice 328 Conservation Crop Rotation** will clearly identify the conservation cropping system being used on the operation consistent with the rotations, tillage, residue, and management operations used in the RUSLE2 software to estimate soil loss rates.
- The conservation plan case file and the copy provided to the customer will contain RUSLE2 plan and management view reports as supporting evidence that the planner has presented alternatives for the customer to consider that meet the tolerable (T) soil loss rate and would comply with Chapter 102 regulations in the event that the selected alternative does not meet (T).

Near-Stream Cropland Areas

- The narrative for practice 328 Conservation Crop Rotation will clearly describe or reference attached job sheets that explain how the 25% cover on cropland areas near streams or additional BMP requirements will be met.
- 25% cover on near-stream cropland areas or additional BMPs is already a planning requirement for all producers operating a CAO or CAFO or needing a CNMP to participate in NRCS programs.
- Conservation Planners will fully evaluate cropland areas near streams using **Planning Guidance for Treating Near-Stream Cropland Areas** located in Section III of the PA Technical Guide.

Pastures and Animal Concentration Areas

- NRCS employees are encouraged to attend basic pasture management trainings to improve the integrity of pasture planning assistance with livestock related concerns on adjacent lands used on the farm.

- Conservation Planners are to immediately begin using the **Concentrated Livestock Area Guidance** located in Section III of the PA Technical Guide. Conservation Planners will fully evaluate areas where livestock concentrate, sometimes referred to as Animal Concentration Areas (ACAs) or Animal Heavy Use Areas (AHUAs) to describe paved, unpaved, improved or unimproved areas that do not otherwise sustain vegetation, forage growth, or post-harvest residues during the normal growing season.
- Conservation Planners may begin to use the **new 528 Job Sheet** for simple grazing systems. Redundant data entry has been eliminated. The Pennsylvania Nutrient Management Program's **Pasture Nutrient Calculator** has been added to the job sheet. Referenced tables are also included for convenience. Grazing Specialists are developing another version for co-grazing systems. As always contact them for assistance with developing co-grazing or other complex grazing systems.

When changes to DEP's Land Application of Manure Supplement to the Manure Management Manual are finalized, additional direction and guidance will be provided to ensure consistency between NRCS efforts to reduce nutrient loss and the Commonwealth's requirements. In the meantime, continue to follow our CNMP planning assistance policy when assisting any Animal Feeding Operation to manage manure.

The documents identified in this bulletin will also be distributed in hard copy format in the Conservation Planning and Regulatory Compliance Handbook for easy reference. A live meeting will also be announced to briefly review the materials and answer any questions.

Thank you for your continued excellence in providing the best customer service possible to help Pennsylvania's farmers and forest landowners. As all of you know, conservation is about much more than mere compliance with laws and regulations; it is about passing on our legacy of efforts to ensure a sustainable food supply, clean water and air, abundant and diverse wildlife, and a livable landscape now and for generations to come.

Contact: If questions, NRCS staff may contact Dan Dostie, NRCS State Resource Conservationist, at 717-237-2256 or daniel.dostie@pa.usda.gov.

DENISE COLEMAN
State Conservationist

cc: Robert Maiden, PACD, Harrisburg
Karl Brown, SCC, Harrisburg
Marge Hughes, DEP, Harrisburg
Steve Taglang, DEP, Harrisburg
Bruce McPheron, PSU, State College
Pennsylvania NRCS Certified Conservation Planners

Planning Guidance

Pennsylvania NRCS
Conservation Planning Guidance

Instructions: Do not include this document in the customer folder. This document is intended to provide guidance on Conservation Plan requirements. It is not meant to include any customer specific information. Discard after each use.

This Conservation Planning Guidance identifies and explains the required elements of a Conservation Plan. Every Conservation Plan will include all items identified in this document unless they are marked "optional," "if applicable," or "as needed."

The Conservation Plan document provided to the customer is a quality document containing information that is meaningful for the customer. The plan exhibits technical adequacy, administrative completeness, and consistency among documents. All plan documents are in accordance with NRCS policy, planning guidance, and practice standards and specifications.

Ultimately the Conservation Plan* is a document that records the customer's decision. The plan includes a statement identifying the customer's objectives, as well as a standard statement clarifying conservation goals or "limitations of objectives."

***Note** – All NRCS Case Files contain copies of all documents provided to the customer, in addition to all other required internal documents.

Business/Customer Information

Decision-maker* (Customer) Name, Mailing Address, Telephone

- ❒ Owner Name, Mailing Address, Telephone
- ❒ Operator Name, Mailing Address, Telephone
- ❒ Farm Mailing Address

*Note – in the case of a partnership, corporation, etc., clearly identify the individual acting as the decision-maker.

Objective Statement*

Clearly states the purpose of the customer's conservation goals using quantitative or qualitative statements of desired future conditions as determined by the customer. The objective statement also includes basic site information such as cropping system and/or type and number of livestock.

*Note – this statement is commonly included at the beginning of the Conservation Practice Schedule.

Assistance Notes (NRCS-CPA-6)

Assistance Notes – Legible notes, maintained by planners. These notes are included in the case file and serve as a concise, factual, and chronological record of significant conservation activities. They may summarize progress in planning and implementation for certifying practices.

Include any notes or records of customer objectives, technical or management alternatives discussed with customer, decisions made when and by whom, etc.

Correspondence Documents (if applicable) – letters, e-mails, supporting maps, etc.

Conservation District cooperative agreement (if applicable)

Conservation Plan Maps

The maps are clear and concise, serving as a visual summary of activities occurring on the operation.

All maps contain:

- ❒ Title block showing:
  - ❒ A map title (i.e. Location Map, Conservation Plan, Soils, Topographic Map)
  - ❒ Name of Conservation District, County, and State in which the operation is located
  - ❒ The date the map was prepared
  - ❒ FSA Farm number (can be placed in "Legal Description" block)
  - ❒ FSA Tract number (can be placed in "Legal Description" block)
  - ❒ Customer's name
  - ❒ Planner's name (optional)
- ❒ A scale bar (1:660 or comparable scale is recommended, as applicable to the size of the operation.)
- ❒ Legend - contains information relevant to each map
- ❒ North arrow
- ❒ NRCS Symbol (optional)

Required Maps

❒ ***Location Map*** (if more than one tract in plan):

The Location Map clearly identifies the location of the operation when multiple tracts are involved in the plan (i.e., Nutrient Management Plan, Grazing Plan, CSP Contract, Cover Crop Contract). Labels displaying **FSA Farm and Tract number** are included.

❒ ***Conservation Plan* Map*** including:

The Conservation Plan map clearly identifies the location of the operation, individual land units, land use designations, and acreage for each land unit. HEL designation should also be displayed.

The Conservation Plan map also identifies the location and extent of **all** planned and/or existing conservation practices.

- ❒ Field and tract boundaries (yellow)
- ❒ Field Labels (yellow)**
  - Field Numbers (whole numbers only)
  - NRCS Land Use Designation
  - Field Acreage (to the 1/10 acre)
  - HEL determination
- ❒ Road Names - Include labels for a minimum of two roads. There is no need to display roads where roads are clearly visible on imagery. Do not include label for "unnamed streets."
- ❒ Waters of the Commonwealth (shown in blue), with labels for all named tributaries (labeled in blue)
- ❒ Location of all known utilities (power lines, cables, pipelines, etc.)

Required Maps (continued)

Conservation Plan* Map including: (Continued)

- ❒ Conservation Practices
  - All existing and planned structural practices with unique symbols
  - All existing or planned vegetative or management practices with a footprint that is less than the whole field.
- ❒ Map legend that clearly labels all practices. Practice names in the legend are consistent with names of the practices used in the Conservation Practice Schedule.

*Note – It may be necessary to use more than one map to show all required information. See Detail Maps section.

**Note – These labels must correspond with the land use/field numbers in the plan document.

❒ ***Detail Maps*** (as needed)

Separate maps may be needed to show more detail for specific land units, conservation systems, or to display the main objective of the plan. In these cases, it may be beneficial to split the information into multiple maps to provide more detail and clarity. The deciding factor is readability. Title the map appropriately.

For example:

Headquarters Map – A close-up map of the headquarters, if needed to show multiple practices in the same land unit

Fencing, Water System, Earth Disturbing Practices, etc. – As needed to show complex systems located within the same field, as is common with grazing systems.

Operator Management Map – Required for CNMP plans and for PA Clean Streams - Chapter 91, Act 38 and CAFO compliance purposes. This is ***required*** by statutory regulation for ***all land receiving manure***.

The ***Operator Management Map*** is to include the following:

- ❒ farm boundary
- ❒ field boundaries
- ❒ field identification
- ❒ field specific acreage (this information can be shown directly on the map for each field, or can be included as part of the map legend indicating the field acreage for each individually identified field)
- ❒ manure application setbacks and buffers (with an identification of the landscape feature that requires the setback, such as location of the stream or sinkhole)
- ❒ location of existing and proposed structural BMPs (including manure storage facilities),
- ❒ location of existing or proposed emergency manure-stacking areas or infield manure-stacking areas, ***and***
- ❒ roads and road names adjacent to and within the operation.

PA Clean Streams Law, Chapter 102.4 Near Stream – Clearly delineate and identify additional conservation practices (or BMPs) for near-stream cropland to protect water quality as required when crop fields have less than 25% “plant cover (living and dead plant material)” and are within 100 feet of rivers and streams.

Land Capability Class, Hydric Soil, Drainage Class, etc. – As relevant to customer’s objectives or identified resource concerns.

Required Maps (continued)

- ❒ ***Soils Map*** including:
  - ❒ Field and tract boundaries (yellow)
  - ❒ Soils polygons (red)*
  - ❒ Map Unit symbols which reference appropriate soil descriptions

  *Note - Soils polygon layer will be the same color as the soils label

- ❒ ***Topographic Map**** including:
  - ❒ Field and tract boundaries

  *Note - Contour map is an acceptable substitute if county data is available.

Record of Customer's Decision

This record of decision is also referred to as the Conservation Practice Schedule, Conservation Schedule, Conservation Plan of Operation, Toolkit Conservation Plan Report, or CPA-68.

The record of customer's decision includes the customer's conservation objective(s) and brief description of the operation, an implementation schedule for all planned practices, a record of all existing practices that continue to be operated and maintained, and complete narrative statements for each practice.

- ❒ The ***Objective Statement*** clearly states the purpose of the customer's conservation goals using quantitative or qualitative statements of desired future conditions as determined by the customer. The objective statement also includes basic site information such as cropping system and/or type and number of livestock.

- ❒ ***Implementation schedule*** - Includes the appropriate label for the land unit (i.e., Field 1), the official practice name, the amount of each planned practice, and month and year the practice is planned to be implemented.

- ❒ A ***narrative statement*** is included with each practice or activity. The narrative includes a brief description of the practice/activity, addresses practice/activity definition, the purpose(s) of the practice/activity, and what is being done. In some cases, the Operation and Maintenance statement is also included in the practice narrative. If using a Job Sheet for a specific practice, include a reference to the Job Sheet in the appropriate narrative. The use of 'G' narratives is encouraged. Adapt these narratives to be more site-specific.

  When a practice is **planned to be implemented**, the narrative includes enough detail so that the producer knows what is expected when applying the practice(s). The basic or 'G' narratives are modified to fit the planning site and include basic information required for practice certification (refer to practice Check Out Documentation form(s)). For practices that will function together as a system, it is important to clearly identify how these practices will work together (i.e., a Roof Runoff Structure that includes an Underground Outlet and Structure for Water Control). For practices being implemented with NRCS financial assistance, it is helpful to include reference to funding program (i.e. - EQIP-FY2010, AMA-FY2009, etc.) in the practice narrative.

  For example –

  The **Conservation Crop Rotation** (328) narrative identifies the crops and cropping sequence that are part of the rotation as well as residue and tillage management of the field, and includes a reference to the RUSLE2 reports. **The narrative also clearly states whether or not the planned rotation meets or exceeds the tolerable soil loss level or "T" for each field. If field is within 150 feet of a stream, the near-stream field treatment practices or managements are clearly identified.**

Record of Customer's Decision (Continued)

The **Fence** (382) narrative states the type of fence (2 strand, 4 strand, high tensile electric, woven wire, barbed wire, etc.) as well as the purpose (interior or exterior, critical or non-critical confinement, etc.).

The **Watering Facility** (614) narrative identifies the type of trough (portable, permanent, and/or frost free, etc.) as well as the source of water (spring development, well, etc.).

The **Pipeline** (516) narrative states the purpose (irrigation, livestock water, waste management component, etc.), the type of pipe (buried-shallow, buried-frost free, above ground and portable), as well as the inlet and outlet location of the pipe.

The **Waste Storage Facility** (313) narrative identifies the estimated length of storage (6 months, 60 days, etc.) as well as manure type (liquid, solid, bedded pack, poultry litter, etc.) and if applicable a brief description of separation method.

The **Roof Runoff Structure** (558) narrative states what type of system is planned (gutter, drip line drain, etc.) and clearly identifies the location of the outlet.

If the practice has **already been applied*** and is included in the schedule as part of a management system or for maintenance purposes, please clearly state this in the narrative.

*Note – In this case, since no management change is occurring, record the original implementation date in both the planned and applied sections of the practice schedule.

❒ **Operation and Maintenance** (O&M) activities, as detailed in the PA NRCS Practice Standards, must either be included in the narrative statement, Job Sheet, or design package. If they are included in the design package or Job Sheet, the narrative statement will reference the appropriate O&M document.

❒ **Pennsylvania Job Sheets*** have been developed for many practices. The intent of the Job Sheet is to provide information to the customer that would be too cumbersome to include in a brief narrative statement. When planning a practice for which a Job Sheet exists, use of the Job Sheet is encouraged. When using Job Sheets, complete all applicable sections.

*Note – PA Job Sheets are located in Section IV of the PA FOTG. Include copies of all completed Job Sheets in both the customer and office file.

Land Use Requirements- Crop

Crop – Land used primarily for the production of field crops or orchard crops alone or in association with seed crops.

❒ **Soil loss rate* for each field and cropping system is documented.**

- ❒ Before and after plan implementation, soil loss will be documented using RUSLE2**.
- ❒ The following RUSLE2 information must be included in the plan file:
  - ❒ Plan View printout with the following information:
    - ❒ Predominant soil type in each field
    - ❒ Tolerable (T) level of soil loss for each soil type
    - ❒ Slope length, feet
    - ❒ Slope steepness, percentage
    - ❒ Erosion rate (tons/acre/year) and description of crop rotation and tillage system for each field
    - ❒ Soil Conditioning Index (SCI)
    - ❒ Soil Tillage Intensity Rating (STIR)
- ❒ Management View printout for each rotation with the following information:
  - ❒ Field Operations
  - ❒ Vegetation type
  - ❒ Crop Yield (if significantly different from default value)

*Rounding – at the discretion of the planner, RUSLE2 soil loss estimates may be rounded **down** to the nearest whole number when the system meets the producer's objectives, provided there is no evidence of rills in the field at any time of year and throughout the rotation, and the planner has confidence that erosion is at or below T.

**Note – If RUSLE2 soil loss calculations document that the preplanning rotation meets the Tolerable (T) soil loss level and no management change is being agreed to, no 'after' soil loss calculation is required.

❒ **Management of near stream area(s) is described.** – Refer to the "Planning Guidance for Treating Near Stream Cropland Areas" for additional information about planning these areas.

❒ **Gully erosion** has been evaluated and (if existing) treatment alternatives have been presented to customer.

❒ **Conservation Crop Rotation (328)**

This practice applies when crops are grown in the same field in a recurring sequence.

It does not apply when the predominant use of the field is for the production of hay, vineyard, orchard, or nursery crops.

- ❒ When planning 328, **crop rotation (sequence and years) including cover crops, residue and tillage management for each crop, and soil loss is documented in the narrative or job sheet.**

Land Use Requirements- Crop (continued)

This rotation and management should be the most restrictive option (highest predicted erosion) that meets the customer's objective. Customers may decrease tillage, substitute less erosion-prone crops or add cover crops without requiring a plan revision. Soil loss calculations for the planned crop rotation(s) are included in the file.

❒ **Pennsylvania Wildlife Habitat Evaluation for Cropland –** The form and form instructions are located in Section III of the Pennsylvania Field Office Technical Guide (FOTG).

Land Use Requirements- Hay

Hay – Land which is predominantly planted in perennial* plants and managed for hay or harvested forage. These fields may be renovated with 1 or 2 years of annual crops before being re-established to a long term perennial crop.

*Note - Land predominantly planted to an annual for hay or forage crop is considered cropland.

❒ **Pasture and Hayland Planting (512)** (formally Pasture and Hayland Planting)

- When planning 512, identify species, seeding rate, and establishment method.

❒ **Management of near stream area(s) is described.** – Refer to the Planning Guidance for Treating Near Stream Cropland Areas for additional information about planning these areas.

❒ Gully erosion has been evaluated and (if existing) treatment alternatives have been presented to customer.

❒ **Pennsylvania Wildlife Habitat Evaluation for Pasture & Hayland -** The form and form instructions are located in Section III of the Pennsylvania Field Office Technical Guide (FOTG).

Land Use Requirements- Pasture

Pasture – Grazing lands permanently producing introduced or domesticated native forage species that are used primarily for the production of domestic livestock. They receive periodic renovation and/or cultural treatments, such as tillage, fertilization, mowing, weed control, to enhance forage quality and yields. The area is primarily harvested by grazing animals. Permanent pastureland in this context means the present operator has no desire to change the land use or rotate crops in the field.

❒ **Prescribed Grazing (528)**- applies when grazing and/or browsing animals are used primarily to harvest vegetation. When planning 528, the following information* must be included in the plan:

- ❒ Forage Inventory detailing quality, quantity, and species of forage
- ❒ Seasonal availability, quality, and stability of watering locations
- ❒ Livestock Inventory detailing number, kind, and class of livestock, estimated forage demand, and length of grazing season
- ❒ Forage Balance Calculation – Equation and supplemental information can be found in the PA 528 Job Sheet.
- ❒ Period of grazing, deferment, rest, stockpiling and other management activities for each unit
- ❒ Contingency plan explicitly states the management of the pasture and animals during periods of drought and extreme precipitation, including winter. This plan identifies areas in which animals will be located during specific field conditions (drought, extreme precipitation, winter). It also clearly identifies sensitive areas from which livestock should be excluded or flash grazed and details the management of the confinement area following livestock occupation.
- ❒ Monitoring plan with record keeping requirements
- ❒ Paddock layout maps (if applicable)

*Note – For more information about 528 requirements refer to the 528 Standard and Specification.

Land Use Requirements- Pasture (Continued)

- ❒ Areas of Animal Concentration have been evaluated and (if existing) treatment alternatives have been presented to the customer. Refer to the "Planning Guidance for Treating Areas of Animal Concentration" for additional information about planning these areas.
- ❒ **Gully erosion** has been evaluated and (if existing) treatment alternatives have been presented to customer.
- ❒ **Pennsylvania Wildlife Habitat Evaluation for Pasture & Hayland -** The form and form instructions are located in Section III of the Pennsylvania Field Office Technical Guide (FOTG).

Land Use Requirements- Headquarters

Headquarters – Land used for dwellings, barns, pens, corrals, or other facilities used in connection with farm operations. This land use is associated with a variety of operation types, most commonly crop production and/or livestock production facilities.

For more information regarding the evaluation and planning of this land use when animals are associated with the operation, refer to the guidance developed for the 'Manure and Wastewater Handling and Storage' element of the PA CNMP.

- ❒ Areas of Animal Concentration have been evaluated and (if existing) treatment alternatives have been presented to the customer. Refer to the "Planning Guidance for Treating Areas of Animal Concentration" for additional information about planning these areas.
- ❒ **Gully erosion** has been evaluated and (if existing) treatment alternatives have been presented to customer.
- ❒ **Comprehensive Nutrient Management Plan (CNMP) –** Required when providing assistance to an AFO or CAFO to address manure or wastewater handling and storage/treatment/ and/or when providing assistance for nutrient management that involves the application of manure and wastewater.

Environmental Compliance*

Refer to Pennsylvania FOTG, Section III or the PA NRCS Environmental Compliance webpage for more information about Environmental Compliance.

*Note: Environmental compliance activities must be coordinated with the NRCS designated agency representative since all findings and interagency consultation are the responsibility of the lead Federal agency.

- ❒ **Environmental Evaluation (NRCS-CPA-52)**
  - ❒ The CPA-52 form is completed for <u>all</u> land uses within the Conservation Plan document.
  - ❒ Conservation practices identified in the Conservation Plan address corresponding resource concerns identified in the CPA-52 form*.
  - ❒ The <u>benchmark conditions</u> are comprehensively inventoried for land being addressed by the Conservation Plan. The resource concerns identified should be comprehensive, and are not limited to those the customer has agreed to address, nor are they limited to those being addressed in a financial assistance contract.
  - ❒ The effect(s) of all planned practices and proposed alternatives are documented.
  - ❒ Compliance with NRCS Wetland Protection Policy is documented in the Special Environmental Concerns – Wetlands section of the CPA-52 form. The NRCS guidance for Wetland Protection Policies is located in Section III of PA FOTG.

*Note - Inventory and evaluation documentation must be adequate to support the information recorded in the CPA-52 form and all decisions regarding Quality Criteria.

Environmental Compliance (Continued)

❒ **Cultural Resources Review Worksheet** and email verification of review by the NRCS Cultural Resources Coordinator (if applicable*).

*Note – This form is required when any practice is rated G or PG-intrusive as per Conservation Practice or CSP Enhancement ratings. For more information refer to the PA Cultural Resources webpage.

❒ **PNDI Project Environmental Review Receipt** with appropriate sections completed.

The Pennsylvania Natural Heritage Program, PNDI Project Planning Environmental Review can be accessed at: http://www.naturalheritage.state.pa.us/

National Food Security Act Compliance (if applicable)

This is applicable to all customers who are currently participating in certain USDA programs or are applying for participation in certain USDA programs.

❒ 'Highly Erodible Land Compliance' / 'Wetland Compliance'

- ❒ AD-1026 (referral from FSA)
- ❒ Farm Producer Data Report (list of customer tracts from FSA) – documents if producer is currently in compliance with HEL/Wetlands
- ❒ NRCS CPA-026E – highly erodible land determination
- ❒ NRCS CPA-027 – NRCS notification of conservation plan revision (given to FSA)

Standard Statement

❒ **Standard Statement –** printed above signature blocks includes additional information for customer regarding clarity on conservation goals or to "contain limitations of objectives."

Signature Block

❒ **Customer Information:**

- ❒ Name
- ❒ Signature
- ❒ Date

❒ **Certified Planner**

- ❒ Name
- ❒ Signature
- ❒ Date

❒ **Conservation District** (if applicable)

- ❒ Name
- ❒ Signature
- ❒ Date

This planning guidance is not part of the official NRCS Case File and is not an official NRCS document.

Supporting Documentation

Job Sheets (As Needed)

PA Wildlife Habitat Evaluations
(By Land Use)

Assistance Notes *(NRCS-CPA-6)*

Environmental Compliance

- *Environmental Evaluation (NRCS-CPA-52)*
- *Cultural Resources Review Worksheet with E-Mail Verification*
- *PNDI Project Environmental Review Receipt*

National Food Security Act Compliance *(If Applicable)*

('Highly Erodible Land Compliance'/'Wetland Compliance')

- *AD-1026*
- *Farm Producer Data Report*
- *NRCS-CPA-026E*
- *NRCS-CPA-027*

More Information

For questions regarding conservation planning or required documentation, please contact your local NRCS office.

NRCS
www.pa.nrcs.usda.gov

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July 2011

Pennsylvania NRCS

Conservation Plan Folder Requirements

Black – Include in NRCS Case File and Customer Folder

Green – *Include in NRCS Case File ONLY*

Conservation Plan Document

Business/Customer Information

- Owner/Operator Name
- Mailing Address
- Telephone Number

Objective Statement

Record of Customer's Decision

- Implementation Schedule
- Narrative Statements
- Operation and Maintenance Statements

Standard Statement

Signature Block

- Customer
- Certified Planner
- Conservation District (If Applicable)

Mapping Requirements

All Maps Contain:

- Title Block Showing:
  - Map Title
  - Name of Conservation District, County, and State
  - Customer's Name
  - Date Map Prepared
  - FSA Farm and Tract number
  - Planner's Name (Optional)
- Scale Bar
- Map Legend

Required Maps

- **Location Map** (If Applicable)
- **Conservation Plan Map Showing:**
  - Field and Tract Boundaries
  - Field Labels
    - Field Numbers
    - NRCS Land Use Designation
    - Field Acreage
    - HEL Determination
  - Road Names
  - Waters of the Commonwealth
  - Location of all Known Utilities
  - Conservation Practices (Existing and Planned)
- **Detail Maps** (As Needed)
- **Soils Map Showing:**
  - Field and Tract Boundaries
  - Soil Polygons
  - Map Unit Symbols
- **Topographic Map**

Land Use Requirements

All Land Uses

- Identify Treatment and Management of:
  - Gully Erosion
  - Near-Stream Areas
  - Areas of Animal Concentration

Cropland/Hayland

- **328, 512,** or other management practices

RUSLE 2 Calculations (Cropland Only)

- Plan View Printout
- Management View Printout

Pasture

- 528
- Prescribed Grazing Documentation

Headquarters

- CNMP (if applicable)

Standard Statements

Using Standard Statements When Creating Plan Documents

Introduction:

A Standard Statement is helpful to the customer in understanding what s/he is about to agree to when signing a Conservation Plan document. With the revision of the PA Clean Stream Law, Chapter 102, it has become more important to reinforce the limits of the Conservation Plan by including a summary Standard Statement. In order to provide a clear summary statement, three Standard Statements have been developed:

Statement 1 - "Meets the Tolerable (T) Level of Soil Loss"

Statement 2 - "Exceeds T, in Compliance with HELC"

Statement 3 - "Exceeds T, not subject to Food Security Act compliance"

One of these Standard Statements must be included in all Conservation Plans that address cropland.

For individuals not using Customer Service Toolkit:

The full text for each Standard Statement is included at the end of this document.

For individuals using the Plan Wizard in Customer Service Toolkit with access to the PA NRCS F: drive:

The Plan Wizard in Customer Service Toolkit provides a method to assist planners in adding Standard Statements to the plan. The planner will select an appropriate file from several Standard Statements provided to be used when creating a Conservation Plan report. There is some preliminary set-up by the user, however, before starting up the Plan Wizard process.

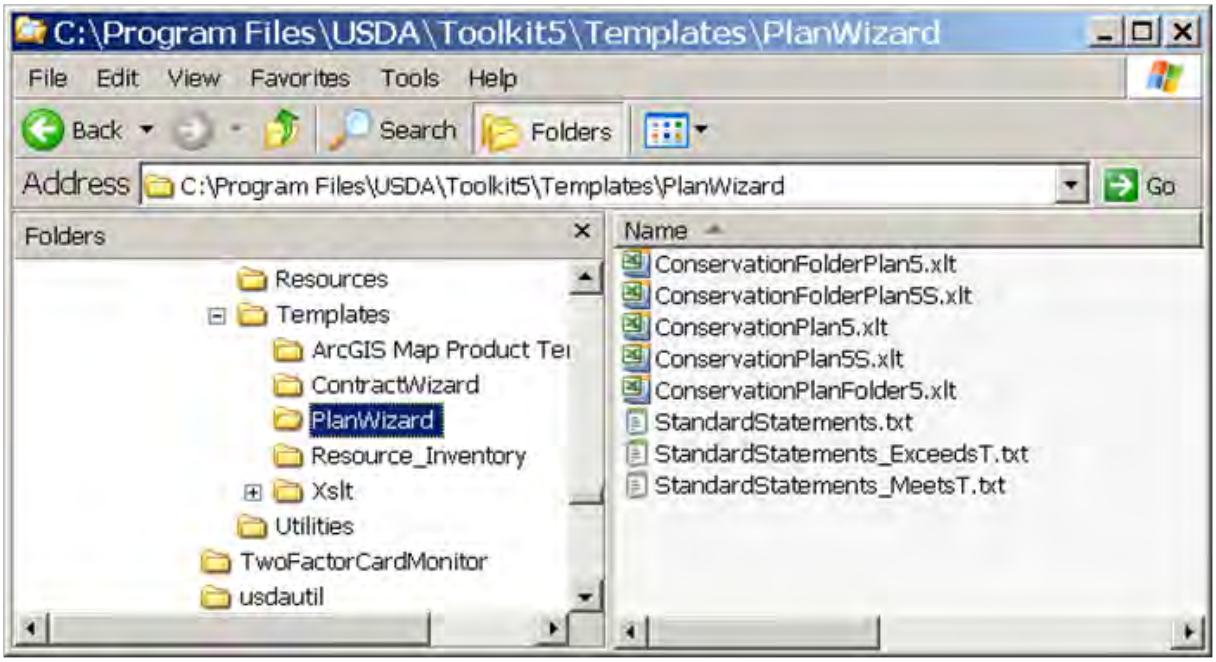
The user must place the statements in the correct folder on their C:\drive to be used effectively within toolkit. The Statement in the plan document will appear just above the signature blocks.

To be accessible from the Plan Wizard, copy and paste statements from

F: data on<paservernamec001\Standard_Statements_for_Toolkit to

C:\Program Files\USDA\Toolkit5\Templates\PlanWizard

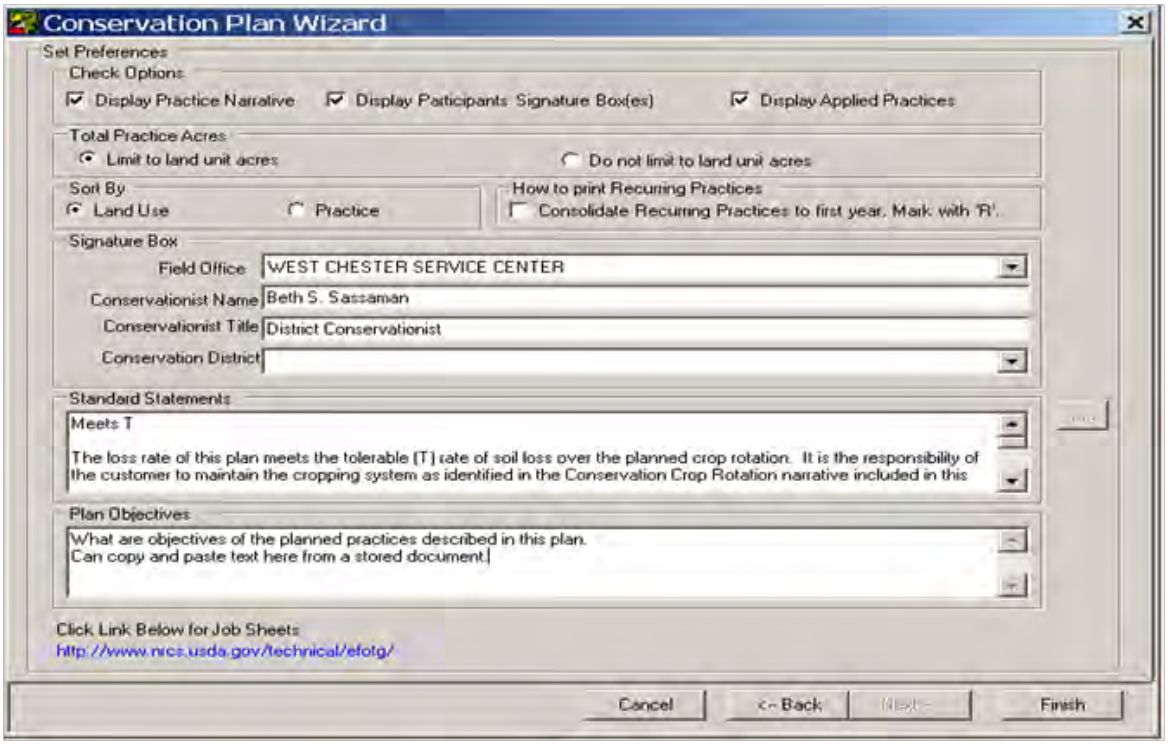
Note: For counties with upgraded servers, name is: <*paservername***C057**

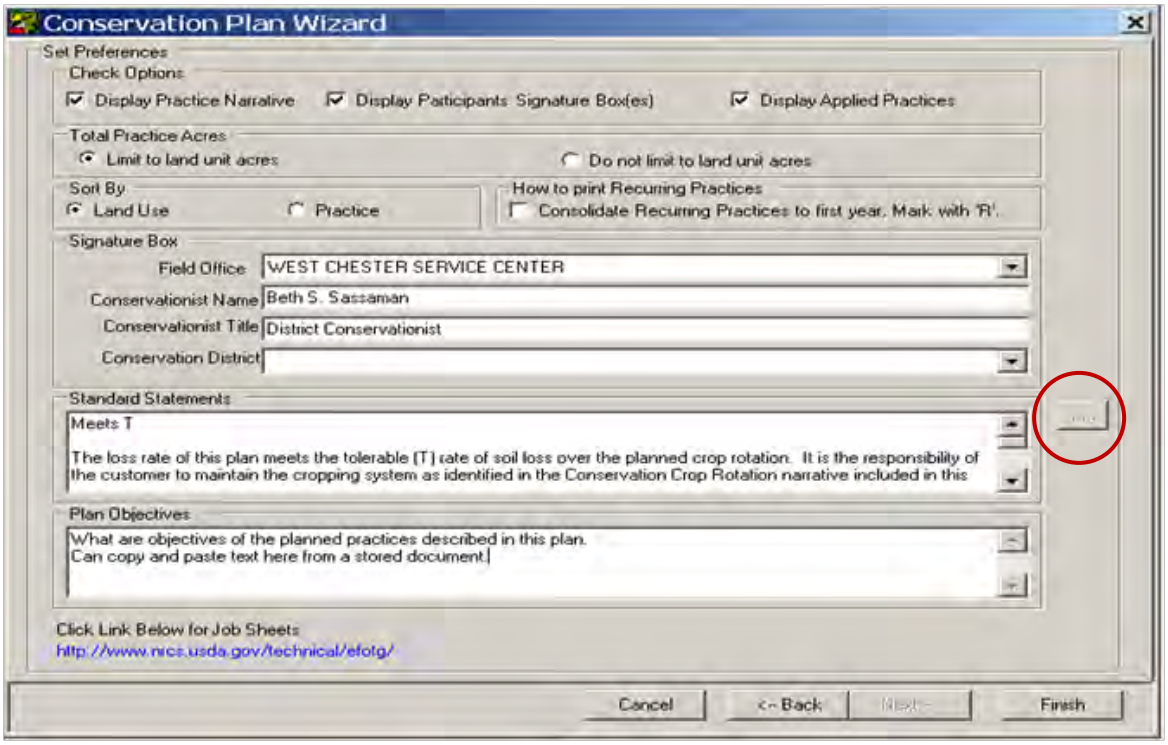


User has the option of creating additional Standard Statements useful to assist customer in understanding the plan report about to be signed. Creating new additional statements must be typed in a text format in Notepad window. (Can be accessed from- Start: All Programs: Accessories: Notepad)

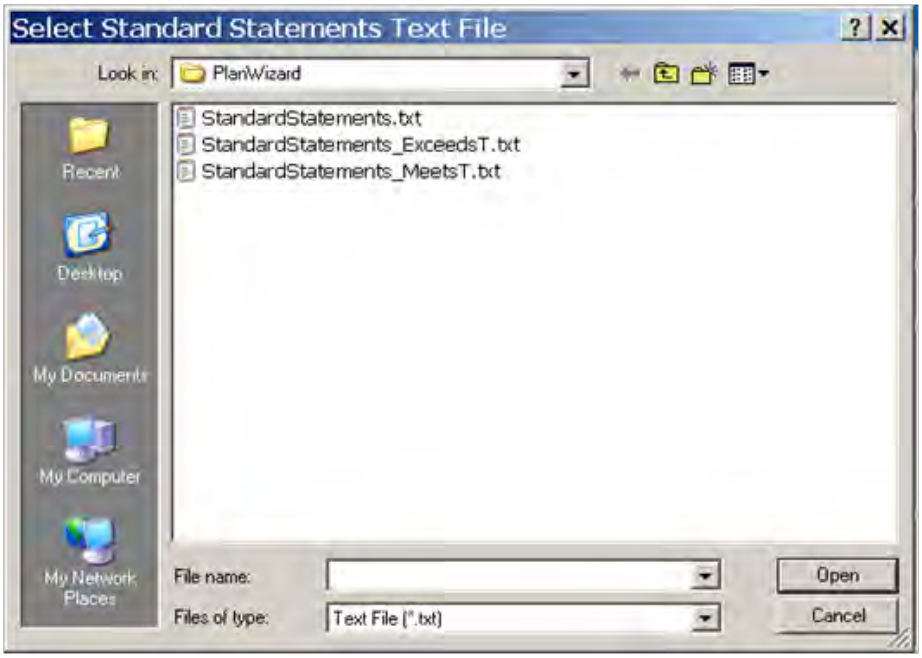
Place additional statements in the C:\ directory as stated above.

The graphic below is an image of the window in Plan Wizard where the Standard Statement and the Plan Objectives are entered when creating the plan document.





The browse button to the right of the Standard Statement textbox, (circled in red) will open to the location of the statements on the C:\drive when clicked.



Double click on a statement of choice to add to the plan wizard.

The plan objective must be typed in by individual preparing plan document according to planning guidance.

Standard Statements

A. Soil Erosion

Standard Statement 1 – Meets the Tolerable (T) Level of Soil Loss

The estimated soil loss rate for cropland in this conservation plan meets the tolerable (T) rate of soil loss over the planned crop rotation. Potential and existing gullies have been or will be treated through this plan. The customer agrees to maintain the cropping system as described in the Conservation Crop Rotation narrative and/or job sheet included in this plan.

The attached RUSLE2 Plan View report shows the estimated soil loss based on the planned cropping system. Flexibility within the system is permitted provided erosion is not increased. The narrative and job sheet describe changes to the system that would likely increase erosion. If the customer makes changes to the system that increase erosion, s/he is responsible for acquiring a new soil loss calculation and ensuring that the soil loss rate of the new cropping system does not exceed T.

The customer is responsible for obtaining all necessary permits, rights, or notifications, and for complying with all state, federal, and local laws and regulations pertaining to the application of the planned conservation practices identified in this plan.

Standard Statement 2 – Exceeds (T), in Compliance with HELC (for Land Subject to Food Security Act)

The soil loss rate for cropland in this in this conservation plan exceeds the tolerable (T) rate of soil loss over the planned crop rotation. Potential and existing gullies have been or will be treated through this plan. The planned system complies with the Highly Erodible Land Conservation (HELC) compliance provisions of the Food Security Act. This plan should not be assumed to meet other federal and state laws and regulations pertaining to soil erosion. Additional structural and/or management practices are needed to meet T.

Responsibility for maintenance of a HELC compliant system rests with the customer. The Conservation Crop Rotation narrative and/or Job Sheet included in this plan provide flexibility to make changes in rotation and still maintain HELC compliance. The attached RUSLE2 Plan View report describes the cropping system used to calculate the estimated soil loss rate. The narrative and job sheet describe changes to the system that would likely increase erosion. If the customer makes changes to the system that increase erosion, s/he is responsible for acquiring a new soil loss calculation and ensuring that the soil loss rate of the new cropping system maintains soil loss at or below the rate of the previous system.

The customer is responsible for obtaining all necessary permits, rights, or notifications, and for complying with all state, federal, and local laws and regulations pertaining to the application of the planned conservation practices identified in this plan.

Standard Statement 3 – Exceeds T – Not Subject to Food Security Act Compliance

The soil loss rate of this plan, as identified in the attached RUSLE2 report, exceeds the tolerable (T) rate of soil loss over the planned crop rotation and/or gullies may be present in cropland. Additional structural and/or management practice changes needed to meet T. The land addressed in this conservation plan is not subject to Food Security Act provisions. This plan should not be assumed to meet federal and state laws and regulations pertaining to soil erosion.

The customer is responsible for obtaining all necessary permits, rights, or notifications, and for complying with all state, federal, and local laws and regulations pertaining to the application of the planned conservation practices identified in this plan.

Cropland Guidance

NRCS Natural Resources Conservation Service

Conservation Crop Rotation – Job Sheet PA328

Definition

A crop rotation is a sequence of different crops grown in a recurrent sequence over a given number of years.

Purposes

Apply conservation crop rotation as part of a cropland management system to support one or more of the following purposes:

- Reduce sheet and rill erosion.
- Maintain or improve soil organic matter content.
- Manage the balance of plant nutrients.
- Manage plant pests (weeds, insects, and diseases).
- Provide food for domestic livestock.
- Provide food and cover for wildlife.

All conservation crop rotations will meet the soil loss objective for sheet and rill erosion

Utilize RUSLE2 to document that the predicted soil loss over the planned rotation meets the soil loss objective.

To maintain or improve soil organic matter content

Utilize RUSLE2 to document that the Soil Conditioning Index for the planned rotation is greater than or equal zero.

To manage the balance of plant nutrients

Sequence crops to provide nutrient balance benefits over rotation. For example:

- Alfalfa sequence will utilize accumulated manure P & K applied to corn sequence (reference PSU Agronomy Guide Figure 1.2-6).
- Utilize cover crops after summer harvested crops such as corn silage and small grains to scavenge soil N mineralized after harvest
- Follow legume crops such as soybeans and alfalfa with a non-legume crop and credit residual legume N to its nutrient budget

To manage plant pests

Rotate crops to disrupt pest lifecycles. Examples provided below.

- Design rotation to disrupt disease lifecycles *Fusarium* species causing head blight in wheat (grass family) also causes stalk and ear rots on corn (grass family). Wheat planted no-till immediately after corn silage harvest is likely to have a higher incidence of head blight than tilled wheat or following a non-grass crop.
- Design rotation to disrupt weed lifecycles. Adding winter annual grain to a rotation can help control or suppress difficult perennial weeds in a rotation of summer annual crops. Perennial weeds, such as tree-of-heaven and hemp dogbane invade and thrive in summer annual no-till rotations. Winter grain harvest in July suppresses or controls these difficult weeds. If needed, the rotation provides an herbicide application window in late summer or fall.
- Design rotation to disrupt insect pest lifecycles. Adult corn rootworm beetles (CRW) lay their eggs in cornfields during summer. These eggs overwinter and hatch the following spring. If corn is planted in that field, the CRW larva will eat the roots of small corn plants to following year unless an insecticide application at planting or GMO seed was planted as a control measure. Alternating corn with other crops on an annual basis eliminates the need for the CRW insecticide or biotechnology control measure

To provide food for domestic livestock

Select crops to balance the feed supply with livestock needs. Calculate this balance as needed using appropriate procedures. Private consultants, Cooperative Extension and others may provide these calculations.

To provide food and cover for wildlife

Select crop to provide food and/or cover targeted wildlife species. Document with appropriate wildlife habitat evaluation tool.

Regulatory conditions met by rotation and/or supporting practices

The jobsheet column headed **"Conditions met by rotation +/or supporting practices"** can be used to document whether the planned cropland system for the acres included on the jobsheet includes sufficient planning to meet three conditions required for Pennsylvania's Chapter 102.4(a) Agricultural Erosion & Sedimentation regulations.

Providing information in this column is a convenient way to communicate to the client whether the conservation plan contains planning that may meet a written Ag E&S plan requirements.

These conditions are:

1. The cropping system meets T over the rotation
2. Fields within 100 feet of a river or stream have 25% cover (living or dead plant material) throughout the year or additional BMPs
3. Gullies are treated to eliminate concentrated flow erosion

Field Office Technical Guide Section III contains further information for addressing near-stream cropland.

Abbreviations in this table may be used as needed to complete jobsheet specification tables when document the sequence of crops in rotation

Crop	Abbr.	Crop	Abbr.
Corn grain	Cg	Winter wheat	Ww
Corn silage	Cs	Winter barley	Wb
Alfalfa	Alf	Rye grain	Ryegr
Alfalfa + Grass mix	Alfgr	Spring oats	Oat
Grass hay	Gr	Cover crop	Cc
Soybean	Sb	Annual ryegrass	Arg
Soybean double crop	sbdc	Tobacco	tob

Conservation Crop Rotation specification — *PA328*

Client name:	Date:
Tract(s) and Field(s):	Acres:

Purpose of the crop rotation (check all that apply)		
☐ Reduce sheet and rill erosion	☐ Manage the balance of plant nutrients	☐ Provide food for domestic livestock
☐ Maintain or improve soil organic matter content	☐ Manage plant pests (weeds, insects, and diseases).	☐ Provide food and cover for wildlife

Sequence of crops to be grown – using abbreviations for crops and tillage in rotation, complete the cropping sequence table below specifying year and season planted (example 2011 – fall – NT – ryecc)

Field #	Acres	RUSLE2 Rotation file name	Season & Year	Season & Year	Season & Year	Season & Year	Season & Year	Season & Year	Season & Year	Season & Year	Season & Year	Conditions met by rotation +/or supporting practices[1]
												☐Meets T ☐Near stream (25% or BMP) ☐All gullies treated
												☐Meets T ☐Near stream (25% or BMP) ☐All gullies treated
												☐Meets T ☐Near stream (25% or BMP) ☐All gullies treated

[1] **A check mark indicates conservation plan addresses these PA Ag E&S plan requirements for this land unit.**

RUSLE2 Rotation file name	**Length of rotation (years)**	**Description (Do not use abbreviations in this section. Provide enough detail to communicate rotation to producer.)**

KEY to abbreviations

Tillage		**Crop**		**Crop**	
NT	No-Till				
MT	Mulch Till				
CT	Clean Till				

Operation and maintenance
Producers may modify crop rotations due to crop failure, specific weather events, or economic conditions. Substitute crops should have properties similar to those in the planned rotation or adjustments in planned tillage, residue management or the addition of cover crops may be needed.
Use the space below to document allowable rotation modifications meeting the producer's objectives and maintain conservation benefits
☐ Add cover crops when _____ ☐ Substitute _____ for _____ ☐ Substitute _____ for _____ ☐ Leave crop residue if substituting _____ for _____ ☐ Use early maturing variety/hybrid to allow timely cover crop planting when adding/substituting _____ ☐ _____ ☐ _____ Notes

Check Out and Certification:

I certify that the above Design and Installation requirements (circle one) *have / have not* been met in accordance with the criteria of the Conservation Practice 328. The _____ acres of this practice installed on the locations covered by this job sheet installed on the date(s) of _____.

_____ _____

Signature of Designated Conservationist or Technical Service Provider Date

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Planning Guidance for Treating Near-Stream Cropland Areas

Revisions to state regulations for Erosion and Sedimentation Control Requirements of Chapter 102.4(a) under PA's Clean Streams Law went into effect November 2010. These regulations require implementation of additional Best Management Practices (BMPs) to minimize accelerated erosion and sedimentation on crop fields with less than 25% plant cover (living and dead plant material) within 100 feet of a river, or perennial or intermittent stream. These regulations are applicable to all cropland farmers in Pennsylvania. As part of a CNMP, all AFOs receiving NRCS assistance (TA or FA) must meet this requirement. Non-AFO conservation plans will document whether or not the customer's written plan meets this regulation.

Low cover scenarios are usually found following the harvest of low residue crops and/or following certain tillage practices. Examples of low residue crops include traditional-cut corn silage (<12" stalk remaining), tobacco, potatoes, low-yielding soybeans and corn grain where stover has been harvested.

BMPs that minimize pollution to waters of the Commonwealth as well as NRCS Conservation Practice Standards found in the FOTG can address low cover near stream conditions. The table, BMP Alternatives for Low Cover (< 25%) Near-Stream Crop Fields, lists some common situations that create low cover and some common BMPs that increase cover to acceptable levels. The BMPs that DEP has specifically listed as acceptable for addressing low cover near-stream areas are provided in the text following the table (Exhibit 1).

BMP Alternatives for Low Cover (< 25%) Near-Stream Crop Fields

Common conditions creating low cover near-stream conditions listed on the left, some common BMP alternatives provided on the right.

Low Cover Near Stream Field Condition	Best Management Practice
Corn silage harvest leaving low surface cover	• Cover crop (340) established immediately after harvest • Establish and maintain 35-foot *Permanent Vegetated Buffer* • Practice continuous (> 7 years) no-till system • Harvest silage high leaving >20 inch stalk, then roll stalks flat to ground
Inversion tillage or aggressive tillage leaves low surface residue for part of the year	• After fall tillage – plant cover crop as soon as practical, ideally within several days of tillage. • In spring, till the near-stream field last, plant as soon as practical ideally within several days of tillage. • Establish a permanent grass or other sod in near-stream field
Rotation includes low residue crop	• Substitute high residue crop near-stream • Establish and maintain 35-foot *Permanent Vegetated Buffer* • Establish a permanent grass or other sod in near-stream field • Practice continuous (> 7 years) no-till system

Cropland Exhibits

Exhibit 1: Near-Stream Cropland Cover Requirements and Alternative BMPs

State Erosion and Sedimentation regulations require that all crop fields within 100 feet of a river or a perennial or intermittent stream have 25% plant cover (living and dead plant material) throughout the year or implement additional BMPs to minimize accelerated erosion and sedimentation.

Pennsylvania DEP has provided the following BMPs that when implemented are acceptable alternatives to meet near-stream requirements when cover is <25%.

1. **Modify the crop rotation** to exclude the low cover situation in the field near the stream. The near-stream field may be planted to permanent sod forming crops such as grass hay, or when silage is in the rotation, substitute corn grain for silage in the near-stream field.

2. **Buffers** may be used alone or as part of a system in these field locations. Buffers include:

   - a 35-foot Permanent Vegetated Buffer and NRCS conservation practice standards for Filter Strip (393)
   - Riparian Herbaceous Cover (390)
   - Riparian Forest Buffer (391)

   35-foot Permanent Vegetated Buffers between the cropped field and the stream may be woody and /or herbaceous vegetation (in any combination) provided runoff flowing into, within, or out of the buffer is primarily sheet flow with no converging rills or gullies visible. Additional field edge vegetation may need to be established in existing partial buffers to meet these criteria. Refer to Section IV of the PA Tech Guide for NRCS practice criteria. Buffers serve as the last line of defense between field and stream.

   Permanent Vegetated Buffer – A permanent strip of perennial vegetation (existing or established) parallel to the contours of, and perpendicular to, the dominant slope of the field, located between the field and the protected land feature (stream, lake, pond, sinkhole) and has flow characteristics that are primarily sheet flow with no obvious concentrated flow (converging rills, ephemeral gullies, classic gullies) into/within/leaving the buffer.

3. **Continuous Residue and Tillage Management – No-Till** (329) must be practiced continuously for seven or more uninterrupted years. After seven years, soil consolidation reduces erosivity by approximately 50% compared to tilled soil. No-till must be continuous and permanent for this management to achieve this conservation benefit.

4. **Harvest corn silage** to leave 20 or more inches of standing stalk, then flatten remaining stalks by rolling the field stubble.

5. **Cover Crop** (340) should be planted as soon as practically possible, ideally within several days of summer crop harvest. The interval between summer crop harvest and cover crop planting should never exceed 10 days. Cover crops provide cover, scavenge nutrients, reduce erosion, and improve soil quality. When properly managed, certain cover crops are suitable grazing and silage forage sources. Select species from Table 1 of the 340 standard meeting the purpose Erosion Control and Surface Water Protection.

6. **Tillage** –Inversion tillage (moldboard plow) and/or chisel/disk systems that leave less than 25% cover will require additional BMPs or greater attention to management details. The most common tillage scenarios and management recommendations include:

   a. *Spring tillage for summer annual or perennial forage crops:* Near-stream fields should be the last fields tilled prior to planting and planting should occur as soon as practically possible, ideally within several days of tillage. The interval between tillage and planting should never exceed 10 days.

   b. *Late-summer tillage for annual or perennial forage crops:* The near-stream fields should be planted as soon as practically possible, ideally within several days of tillage. The interval between tillage and planting should never exceed 10 days.

   c. *Fall tillage for winter grain or cover crops:* For winter grains, the near-stream fields should be planted as soon after tillage as practically possible, ideally within several days of tillage. The interval between tillage and planting should never exceed 10 days.

Concentrated Livestock Area

Guidance

Concentrated Livestock Area Guidance

Applicability:

This guidance applies when planning concentrated livestock areas. Concentrated livestock areas can be found on any land use. Producers utilize these areas for feeding, watering, exercise, resting, breeding, rearing, handling, and other production purposes. Shaded, near-stream, and other areas where animals naturally congregate and loaf fit this category.

Unplanned livestock activity on these areas can create resource concerns and worsen existing problems. Some typical problems include:

- soil compaction
- increased runoff
- nutrient concentration,
- transport of contaminated sediments or dissolved nutrients to sensitive areas
- unacceptable air emissions
- degraded plant resources

In addition, every agricultural operation in the state is obligated to manage these areas according to a written plan in compliance with Pennsylvania regulatory authority.

Unplanned livestock activity can create resource concerns.

The purpose of this conservation planning and regulatory compliance guidance document is to help planners identify these areas, the problems they create, and to develop alternatives that are appropriate for customers' objectives, management ability, and economic means. When decisions are made to treat problems found on these areas, planners will offer appropriate technical and/or financial assistance to implement the changes needed.

Key Terms:

Terminology used by state and federal agencies can be confusing. Different terms may be used to describe the same or similar conditions. For example, the terms **Animal Concentration Area** (ACA) and **Animal Heavy Use Area** (AHUA) both refer to land areas used by livestock where neither vegetation nor post-harvest residues are sustained in the normal growing season. This guidance document refers to these areas as concentrated livestock areas. A concentrated livestock area may be evaluated and found to have no problems or, when problems are found, treated by a variety of alternative solutions suggested in this document. The Glossary of Key Terms at the end of this document defines commonly used and easily confused terms applicable to managing concentrated livestock areas.

Planning Procedure:

Resource Inventory and Analysis

A **Resource Inventory and Analysis** (steps 3 and 4 of the planning process), must be done to evaluate all applicable resource concerns and to develop feasible alternatives for areas with identified problems. Guidance for completing the Resource Inventory and Analysis is found in Exhibits 1-4 of this document and in the "CNMP Engineering Inventory Worksheet," located in Section III of the PA Field Office Technical Guide (FOTG).

- **Exhibit 1** – **Resource Evaluation Procedure for Concentrated Livestock Areas**, provides step-by-step guidance for determining if problems exist for a spectrum of concentration areas presented in four main scenarios.

- **Exhibit 2** – **Guidance for In-Field Evaluation of Concentrated Livestock Areas,** provides guidance for evaluating poorly or non-vegetated areas and offers simple alternatives to treat identified problems. The alternatives offered may solve a problem and not necessitate the implementation of a conservation practice. For operations that are not required to have a CNMP meeting regulatory requirements may be found here.

- **Exhibit 3** – **CNMP Planning Considerations for Evaluating Concentrated Livestock Areas** (ACAs) is adapted from the Pennsylvania Nutrient Management Program Technical Manual and provides considerations for evaluating planning these areas to meet CNMP planning criteria.

- **Exhibit 4** – **P-Index Ratings and Pasture Management Guidance** adapted from the Pennsylvania Nutrient Management Program Technical Manual provides management recommendations to improve the condition of pasture vegetation along the edge of receiving water. Attention to management in this area can lower the P-Index Ratings and provide nutrient management flexibility by mitigating risk associated with the pasture/receiving water interface.

Resource Inventory and Analysis documentation must be completed as part of the conservation plan and included in the case file. This documentation can include, but is not limited to, the "CNMP Engineering Inventory Worksheet," the engineer's trip report, RUSLE2, a nutrient management plan, the PA NRCS 528 Grazing Job Sheet, etc.

The Resource Inventory and Analysis must be documented by an individual with appropriate experience and/or job approval authority, i.e., sufficient planning experience for the non-engineering practices and or Engineering Job Approval Authority for completing an Inventory and Evaluation (I&E) of engineering practices. For complex areas with multiple resource problems, assistance should be requested from a specialist, an individual with higher job approval authority, or a more experienced planner. Projects with roof alternatives must include assistance from the Technical Center staff.

A Resource Inventory and Analysis more than 1 year old should be reviewed to verify that it still reflects the agricultural operation and management style. If operational or management changes are identified, the Resource Inventory and Analysis must be reviewed and revised to reflect the new conditions. Following the Resource Inventory and Analysis, technical and financial assistance can only be provided for practices documented in the conservation plan.

The customer will be involved with the Resource Inventory by identifying the current land use and management system, and by identifying their goals and objectives for the area (rotational grazing system, exercise area, feeding area, etc.).

During the Resource Inventory and Analysis, identify all existing practices and proposed alternatives, including but not limited to:

- Prescribed Grazing (528)
- Heavy Use Area Protection (561)
- Pasture and Hayland Planting (512)
- Vegetated Treatment Area (635)
- Waste Storage Facility (313)
- Trails and Walkways (568)
- Stream Crossing (578)
- Roof Runoff Structure (558)
- Diversion (362)
- Structure for Water Control (587)
- Constructed Wetland (656)
- and all applicable component practices

Use of Planning Criteria:

During the **Resource Inventory and Analysis** and the **Formulate Alternatives** steps of the planning process, follow the criteria listed in the following Planning Criteria section. Typical resource concerns are described and minimum regulatory requirements are presented. Criteria are presented for Animal Feeding Operations (AFOs) and non-AFOs alike. Guidance is also provided for sizing heavy use areas, determining when roofs are appropriate, and identifying appropriate surface materials for concentrated livestock areas.

Planning Criteria:

Typical Resource Concerns

Concentrating livestock in an area may cause problems for a number of common resource concerns.

- Soil quality may become degraded resulting in on-site erosion or increased overland surface water flow and sediment transport. Increased overland surface water flow increases the risk of down-slope erosion and the sedimentation of receiving water bodies.
- Even without overland sediment transport, dissolved nutrients may be carried in the surface water runoff and increase the risk of degrading the quality of the receiving water bodies. Dissolved nutrients may also leach through the soil and either degrade ground water quality or be transported to surface water bodies through underground water flow paths.
- Excess nutrient and/or pathogen accumulation can lead to degraded plant conditions such as poor vegetative cover or an increase in undesirable vegetation.
- An increase in mastitis, hoof rot, calving problems, or poor body condition score can be signs of poor domestic livestock health caused by nutrient and/or pathogen accumulation in concentrated livestock areas.
- Accumulation of manure deposition increases the risk of unacceptable emissions of air pollutants such as excess ammonia. Manure accumulation may also degrade plant and soil condition resulting in the release of excess carbon dioxide.
- Threatened and endangered species and/or the regeneration of forests or native plant communities may also be negatively impacted.

Water Quality Resource Concern

Due to the recent increase of regulatory requirements, the priority of this planning document is to address the water quality concern.

The water quality risk of a concentrated livestock area is directly related to its proximity to surface water bodies. Proximity to groundwater or sensitive areas, including poorly drained or excessively well drained soils, pose similar risks. Limiting livestock access during wet conditions, providing drainage and/or an impervious base or surface material, installing stabilized crossing areas, relocating concentrated livestock areas to appropriate locations, limiting livestock access to the area, and/or installing wastewater or manure collection systems may adequately treat water quality concerns.

Minimum Regulatory Requirements for all Concentrated Livestock Areas

To meet minimum PA regulations, concentrated livestock areas must be managed to meet conditions on the following list. Use Exhibit 2 as a field reference when evaluating concentrated livestock areas to determine if the following requirements are met:

1. Manage concentrated livestock areas to minimize accelerated erosion and sedimentation.
2. Divert clean water flow from upslope areas including fields and pastures, drainage ways, concentrated flow paths, driveways, barn roofs, etc., away from the concentrated livestock area.
3. Direct polluted runoff or allow it to flow from the concentrated livestock area to prevent direct runoff connectivity to sensitive areas (surface water bodies or ground water inlets). Runoff may be directed into a storage facility or best management practice such as a correctly sized and well maintained vegetative filter strip.
4. Limit animal access to surface waters to only properly implemented livestock crossings. Animals may not have free access to streams adjacent to or within concentrated livestock areas.
5. Minimize the size of denuded areas.
6. Keep areas where animals concentrate, such as feed racks and shade, as far away from a water body as practical.
7. Where appropriate, include relocation of movable structures that create concentrated livestock areas, such as hay rings, at least annually where practical to minimize development of denuded area and manure concentration.
8. Remove accumulated manure from concentrated livestock areas routinely, which may be generally four times a year, to minimize the potential for pollution discharges.

Concentrated Livestock Areas and Pastures on AFOs

A CNMP is required when NRCS provides technical or financial assistance to an AFO to address manure or wastewater handling, storage, or field application. All CNMPs require an Act 38-equivalent (content and format) nutrient management element. The Pennsylvania Nutrient Management Program Technical Manual is the definitive reference for planning pastures and concentrated livestock areas on AFOs. CNMP planning requires that all concentrated livestock areas must be addressed in a manner that eliminates the direct discharge of runoff from these areas from entering water. As a reference, Exhibit 3, "CNMP Planning Considerations for Evaluating Concentrated Livestock Areas (ACAs)" adapted from the PA Nutrient Management Program Technical Manual, is provided. CNMP planning requires P-Index risk assessment on all pastures. For each pasture, P-Index ratings determine maximum allowable nutrient application rates, including manure and fertilizer mechanically applied and direct deposits by grazing animals. Exhibit 4 summarizes pasture management guidance for different P-Index ratings.

Aerial view of an AFO with a concentrated livestock area connected to a prescribed grazing system.

Concentrated Livestock Areas on Headquarters and Access to Pastures

When livestock are completely confined to the headquarters, it is possible to treat a concentrated livestock area with Heavy Use Area Protection (561), a Waste Storage Facility (313), or Vegetated Treatment Area (635). These, along with other supporting practices, are commonly used to treat concentrated livestock areas that occur in the limited acreage near animal housing, feeding, or other production facilities.

However, many operations frequently allow unrestricted livestock movement between the headquarters and pasture which poses a risk to creating new concentrated livestock

areas. By considering the headquarters/ pasture interface during the initial planning stages it is possible to minimize or eliminate their formation. During the development of alternatives for pasture use, determine whether the landowner plans to manage their livestock in total confinement or if they plan to allow access to the pasture. Typically, the proper installation of an Animal Trail and Walkway (575) connecting the headquarters to a pasture planned under Prescribed Grazing (528) will prevent new concentrated areas from forming.

Implemented BMPs protecting a concentrated livestock area on headquarters.

Concentrated Livestock Areas on Pasture

Pasture is improved land, producing introduced or domesticated native forage species, managed to enhance forage quality and yields, and is harvested primarily by grazing livestock. Concentrated livestock areas are frequently located within pastures.

Pasture land must meet one of the following two criteria:

1. Have a grazing plan that meets at a minimum the criteria of the NRCS Prescribed Grazing (528) Standard and Specification for the purpose "To Improve or Maintain Surface and/or subsurface Water Quality and Quantity."

- OR -

2. Be managed to maintain dense forage species throughout the grazing season. Dense vegetation means minimal denuded spots and an average vegetation height across the pasture maintained to at least 3 inches in height.

When the field unit does not meet either of the above criteria, the field cannot be considered as the pasture land use. The management of the field must either be changed to meet one of the criteria, or the field must be planned as headquarters with appropriate practices planned to treat existing problems. When an area within pasture land does not meet either of the above criteria, the area must be managed as a concentrated livestock area. Exhibit 1 can be used to determine the severity of problems caused by the concentrated

Potential concentrated livestock area on pasture.

livestock area located within pasture land. Management requirements for concentrated livestock areas in pasture must be addressed in the Grazing Contingency Plan portion of a (528) Prescribed Grazing Plan.

Winter Seasonal Concentrated Livestock Areas on Pasture

In addition to Exhibit 1, when a concentrated livestock area within a pasture is ever used in the winter* and vegetated in the summer, the following additional requirements apply to the area:

- Slope of site may not exceed 8%
- Site must be soil tested at least once every 3 years to verify that P $\leq$ 200 ppm.
- For sites with a soil test P $\geq$ 200 ppm, the concentrated livestock area must be rotated annually and used no more than once every 4 years
- Accumulated manure and feed must be removed from the area after each use and vegetation established for the next growing season
- Be located at least 100 feet away from an above ground inlet to an agricultural drainage system (such as inlet pipes to piped outlet terraces) if surface water flow is toward the above ground inlet.

*For purposes of this guidance, winter includes any one of the following:

- December 15 through February 28;

- or -

- Anytime the ground is frozen at least 4 inches;

- or -

- Anytime the ground is snow covered.

Space and Sizing

Plan to provide adequate space when designing concentrated livestock areas. Sizing depends on:

- The type, age, and size of livestock
- The intended use of the space
- The frequency and duration the livestock will be in the space
- The availability of feed and water in the area or accessibility to feed and water in the barn or elsewhere
- The surface material on which the livestock will be confined.

In addition, space must be provided for equipment access, traffic flow, feeding bunks, manure scraping maneuverability, and management and use of associated practices.

Exhibit 5 provides appropriate square footage for heavy use areas on paved and unpaved surfaces for various types of livestock. The square footage amounts allow for basic space requirements and can be adjusted to account for the factors described above. The square footage amounts do not include animal housing, and are assumed to be in addition to production practices like housing or shelter.

In all cases, the area to be treated should be minimized to limit the amount of stormwater captured and treated on the site.

Roofs and Covers

If a roof is planned for anything other than an Agrichemical Handling Facility (309), Waste Storage Facility (313) for stackable manure, or an Animal Mortality Facility (316), it must be compared to all other technically feasible alternatives. If there are no technically feasible alternatives, a description of the site specific conditions prohibiting all non-roofed alternatives must be documented in the case file for projects receiving financial assistance. In some cases, locations adjacent to sensitive areas and/or permit requirements may justify a roof.

Surface Materials

A combination of surface materials and pro-rated sizes can be used within concentrated livestock areas to transition from more intensely used areas found around feed and water sources to less intense exercise and loafing areas. For more information about surface material options, refer to the PA NRCS Heavy Use Area Protection (561) or Animal Trail and Walkways (575) Standards and Specifications.

Seasonal concentrated livestock areas in pasture systems, such as winter feeding areas, are

identified in the contingency plan developed for Prescribed Grazing (528). If the area becomes unstable, permanent, and/or requires surface improvement follow the criteria identified in 561.

Developing Alternatives:

When developing alternatives the following must be considered: customer's goals and objectives, regulatory requirements, location of sensitive areas, animal type(s) and numbers, livestock management system, available land and/or farmstead layout, soil properties, additional equipment needs, landowner's capability to manage the practice (including O&M) for the practice lifespan, and cost. Only alternatives that are technically feasible and suited to the customer's management ability are offered.

Decision Making and NRCS Assistance (TA and FA):

The selected (or preferred) alternative, and all associated practices, must be documented as the customer's decision in the conservation plan. These decisions may be impacted by farm economics and/or funding availability. When financial assistance is requested, program requirements must be considered. Refer to the current year program guidance for financial assistance guidance.

Often, conservation practices benefit both resource conservation and the productivity of the operation. However, items that are solely related to production are not eligible for NRCS financial assistance. Examples of ineligible items may include animal housing, equipment, operation expansion, etc.

A site specific Operation and Maintenance (O&M) plan explaining the performance expectations and necessary actions to assure the function of the practice(s) for the lifespan must be reviewed with and signed by the landowner. The O&M plan must include a provision that no new barnyard or concentrated livestock area be established outside the improved area identified in the conservation plan document and/or grazing contingency plan. Any expansion or relocation of the system must be implemented to the same degree of environmental protection.

Before: Existing concentrated livestock area.

After: Implemented roof and heavy use area.

Glossary of Key Terms:

This glossary defines terms that are associated with concentrated livestock areas. While this may not be a complete list of terms associated with concentrated livestock areas, the terms and definitions provided below are some of the most common. The terms listed below are used by NRCS, state, and/or federal regulation.

Animal Feeding Operation (AFO) – as defined by the Unified National Strategy for Animal Feeding Operations, USDA EPA 1999:

An AFO is a lot or facility where the following conditions are met:

- Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in a 12-month period, AND
- Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.
- AFOs are agricultural operations where livestock are kept and raised in confined situations. AFOs generally congregate livestock, feed, manure, dead animals, and production operations on a small land area. Feed is brought to the livestock rather than the livestock grazing or otherwise seeking feed in pastures.

Operations with multiple animal groups are considered an Animal Feeding Operation if any one group meets the criteria.

Concentrated Animal Feeding Operations (CAFO) - AFOs that meet the regulatory definition of a CAFO may be regulated under the EPA NPDES permitting program. EPA counts the actual number of animals at the operation to define a CAFO. For example, an operation confining at least 700 mature dairy cattle is regulated as a CAFO and requires Pennsylvania Department of Environmental Protection (DEP) permitting. The PA DEP has delegated authority to administer EPA's NPDES permit regulations program in this Commonwealth.

Concentrated Animal Operations (CAO) - are defined as agricultural operations where the animal density of all livestock on the farm exceeds two animal equivalent units* (AEUs) per acre on an annualized basis (PA Act 38, 2006).

*An AEU is 1,000 pounds of live animal weight on an annualized basis. Annualized means that if the animals are not present on an operation for a whole year, the animal units are adjusted for the proportion of time during the year the animals are present on the operation.

Animal Concentration Areas (ACA) - are barnyards, feedlots, loafing areas, exercise lots or other similar animal confinement areas that will not maintain a growing crop, or where deposited manure nitrogen is in excess of crop needs. ACAs are not areas managed as pasture or other cropland, nor are they pasture access ways, if they do not cause direct flow of nutrients to surface or groundwater (PA Act 38, 2006).

Animal Heavy Use Areas (AHUA) - are barnyards, feedlots, loafing areas, exercise lots or other similar areas on an agricultural operation where, due to the concentration of animals, it is not possible to establish and maintain vegetative cover of a density capable of minimizing accelerated erosion and sedimentation by usual planting methods. An AHUA does not include entrances, pathways and walkways between areas where animals are housed or kept in concentration (PA Clean Streams Law, Erosion and Sedimentation Control Requirements, Chapter 102.4(a)).

Comprehensive Nutrient Management Plans (CNMP) -are conservation plans for AFOs that:

(1) Must include the following:

(i) The production area, including the animal confinement, feed and other raw materials storage areas, animal mortality facilities, and the manure handling containment or storage areas.

(ii) The land treatment area, including any land under control of the AFO owner or operator, whether it is owned, rented, or leased, and to which manure or process wastewater is, or might be, applied for crop, hay, pasture production, or other uses.

(2) Meets NRCS Field Office Technical Guide (FOTG) Section III quality criteria for water quality (nutrients, organics, and sediments in surface and groundwater) and soil erosion (sheet and rill, wind, ephemeral gully, classic gully, and irrigation-induced natural resource concerns on the production area and land treatment area).

(3) Mitigates, if feasible, any excessive air emissions and/or negative impacts to air quality resource concerns that may result from practices identified in the CNMP or from existing on-farm areas/activities.

(4) Complies with Federal, State, Tribal, and local laws, regulations, and permit requirements; and Satisfies the owner/operator's production objectives.

References

Pennsylvania Nutrient Management Program Technical Manual (latest version) provides technical criteria for completing the nutrient management element of a CNMP http://panutrientmgmt.cas.psu.edu/main_technical_manual.htm

- Chapter 102 Regulations, http://www.portal.state.pa.us/portal/server.pt?open=514&objID=554331&mode=2

- CNMP Policy Title 190 Part 405

Livestock Exhibits

Exhibit 1 - Resource Evaluation Procedure for Concentrated Livestock Areas

This evaluation guide limits the spectrum of concentration areas to four main scenarios, identifies soil and water quality problems for each scenario, and offers potential alternatives for identified problems. The evaluation guide is applicable to all land uses to which livestock have access.

The criteria for each scenario is presented through a series of "if, then" statements. Each scenario evaluates a given situation for soil erosion and water quality problems. All criteria must be met in order for the scenario to apply to the field situation. If all criteria are not met, move on to the next scenario.

With the exception of Scenario 1, the scenarios below are listed in order of worsening problem.

Scenario 1 – All land uses, permanent concentrated livestock area – CAFO, CAO, AFO – CNMP required

If the operation is a CAFO, CAO, or AFO by definition ⇨ ***then*** a CNMP is required to be developed and signed in order for NRCS assistance to manage manure to continue. Refer to Exhibits 3 and 4 for evaluating concentrated livestock areas and Pastures that are part of AFOs as well as NRCS policy and procedures and respective regulatory requirements providing CNMP assistance.

> "A CNMP is required when providing technical or financial assistance to an AFO or CAFO to address manure or wastewater handling and storage/treatment and/ or when providing technical or financial assistance for nutrient management that involves the application of manure and wastewater. Once developed, the CNMP will be signed by the producer before the installation of any waste storage/handling facilities and nutrient management activities identified in the CNMP are initiated." NRCS General Manual 190_405_B.

If the operation is **not** a CAFO, CAO, or AFO by definition, continue **to Scenarios 2 – 4.**

Scenario 2 – Non AFO Pasture, no permanent concentrated livestock area – access limited to grazing season

The pasture is well managed and covered with desirable vegetation (perennial species) and the only denuded areas are minor in size and are located around watering troughs, gates, mineral supplements, shade areas, etc.

If livestock access to the pasture is limited to the grazing season

AND

If the Pasture Stocking Rate is ≤1 AU/Acre*

AND

If plant nutrients are NOT mechanically applied

AND

If the denuded area is dry, shows no visible signs of erosion or poor drainage

AND

If the denuded area is not located within 35 feet of a surface water body source (stream, water way, pond, road ditch, sinkhole, etc.), ***-OR- If*** the denuded area is within 35 feet of stream and is managed with an existing Stream Crossing (574) and stabilized Animal Trail and Walkway (575)

THEN

The pasture can continue to be managed as is ⇨ NO EROSION, SEDIMENT OR NUTRIENT PROBLEMS. Use the PA NRCS Grazing Job Sheet to determine adequacy of forage supply for grazing.

***Note** – If livestock access to the pasture is limited to the grazing season **but** the Pasture Stocking Rate is >1 AU/Acre, move on to Scenario 3.

Scenario 3 – Non-AFO Pasture, no permanent concentrated livestock area – livestock have year-round access

The area is well managed and covered with desirable vegetation (perennial species) and the only denuded areas are minor in size and located around watering troughs, gates, mineral supplements, shade areas, etc.

1. If livestock have access to the pasture throughout the year

AND/OR

Pasture Stocking Rate is more than 1 AU/Acre

AND/OR

Plant nutrients are mechanically applied

THEN

Evaluate the risk for nutrient problems using the assessment procedures required by Nutrient Management (590)

- - - - - - - AND/OR - - - - - - -

2. ***If*** the denuded area is wet, shows signs of erosion or poor drainage

OR

If the denuded area is less than 35 feet from a surface water body source (stream, waterway, pond, road ditch, sinkhole, etc.)

OR

If the denuded area is within 35 feet of stream and is managed with an existing Stream Crossing and stabilized Animal Trail and Walkway

THEN

Alternatives need to be developed to address the problem. Alternatives may include: establish permanent vegetative cover, relocate water troughs or mineral supplement location, stabilize the area around the gate or water trough, build fence and establish a permanent vegetative buffer to exclude the livestock from the area adjacent to the water body.

Scenario 4 – All land uses, poorly or non-vegetated areas on concentrated livestock non AFOs

Use this scenario if evaluating a permanent feeding/loafing/exercise area (ACA/AHUA) on a non AFO.

Use this scenario for all situations not meeting the criteria of the previous scenarios.

The area does not sustain vegetation, forage growth, or post-harvest residues during the normal growing season. (This section includes paved or unpaved areas.)

Complete evaluation of area using **Exhibit 2 – Guidance for In-Field Evaluation of Concentrated Livestock Areas**

Have all desired conditions been met?

YES ⇨ No Problem, STOP

NO ⇨ Problem exists, develop alternatives to solve the problem. Refer to Exhibit 2, Table 1 for some suggested simple management solutions.

Now that alternatives have been developed, is the customer "ready, willing, and able" to resolve the problems identified in Exhibit 2?

YES ⇨ It is unlikely that the customer will run into regulatory compliance issues, ***BUT*** the area ***does not*** meet NRCS practice standard requirements.
** **Do not** report practices as planned or applied.

YES ⇨ It is unlikely that the customer will run into regulatory compliance issues AND the area ***does*** meet NRCS practice standard requirements. Report applicable practices as planned after conservation plan is agreed to and approved.

NO ⇨ The problems will continue to exist and the customer may be found out of compliance with state and/or federal regulations. The area does not meet NRCS Quality Criteria or NRCS practice standard requirements. Do not report practices as planned or applied. **Advise the customer they may be in violation of one or more state or federal regulations.**

Exhibit 2 - Guidance for In-Field Evaluation of Concentrated Livestock Areas

Concentrated livestock areas (also known as ACAs or AHUAs) are barnyards, feedlots, loafing areas, exercise lots or other similar areas that will not maintain dense vegetation. Concentrated livestock areas can be found on any land use and all must be assessed regardless of their location. Livestock access ways, feeding areas, watering areas, shade areas or walkways are also considered to be concentrated livestock areas when manure or sediment contaminated runoff connects with and reaches a surface water body source (stream, waterway, pond, road ditch, sinkhole, etc.)

Farms with one or more concentrated livestock areas must have written plans that, at minimum, identify conservation practices and/or other Best Management Practices (BMPs) currently implemented to prevent pollution. The written plan must treat identified water quality resource problems. In order to obtain financial assistance, the written plan must include a schedule for implementing needed conservation practices or BMPs.

Concentrated livestock areas must be managed to:

1. Manage concentrated livestock areas to minimize accelerated erosion and sedimentation.
2. Divert clean water flow from upslope areas including fields and pastures, drainage ways, concentrated flow paths, driveways, barn roofs, etc., away from the concentrated livestock area.
3. Direct polluted runoff or allow it to flow from the concentrated livestock area to prevent direct runoff connectivity to sensitive areas (surface water bodies or ground water inlets). Runoff may be directed into a storage facility or BMP such as a correctly sized and well maintained vegetative filter strip.
4. Limit animal access to surface waters to only properly implemented livestock crossings. Animals may not have free access to streams adjacent to or within concentrated livestock areas.
5. Minimize the size of denuded areas.
6. Keep areas where animals concentrate, such as feed racks and shade, as far away from a water body as practical.
7. Where appropriate, include relocation of movable structures that create concentrated livestock areas, such as hay rings, at least annually where practical to minimize development of denuded area and manure concentration.
8. Routinely, generally four times per year, remove accumulated manure from concentrated livestock areas to minimize the potential for pollution discharges.

Table 1 provides guidance for in-field evaluation of concentrated livestock areas and provides simple management and BMP solutions to address problems where the desired condition is not met and practices are not warranted or feasible due to cost, location, or management level.

Table 1- Guidance for In-Field Evaluation of Concentrated Livestock Areas

Desired conditions for concentrated livestock areas are stated in the left column. When the desired condition is not present on site, consider simple BMP alternative solutions provided on the right.

Desired Condition	Simple BMP Alternative Solutions
Congregation areas at gates are stable, minimal offsite flow thru them	Add stabilizing material. Redirect runoff away from area
Animal trail appropriate width and stabilized	Re-fence if trail too wide. Stabilize with appropriate material
No significant off-site surface water going thru site	Divert offsite water. If necessary install diversion above site
Runoff from buildings is collected and diverted around or piped under site	Install roof gutters and outlet or other methods to keep clean water clean
Site stable, not rutted, no depressions, mud less than 6" deep	Site can be graded and/or bring in fill to establish positive slope
Paved area curbed and runoff directed to storage or a vegetated treatment area	Add curbing or pavement and direct runoff to storage or vegetated treatment area
Feeding areas should have no manure accumulation	Clean up area at least two times a year
Feeding areas located 150' away from streams	Move feeding areas away from stream
Dense vegetation below livestock concentration area is at least 3X upslope length or 150' whichever is greater	Move livestock concentration area up slope
Vegetation below livestock concentration area has 3 inch growth and minimal denuded spots	Livestock access to be limited to avoid overgrazing
Site slope < 8%	Move area to a site that is <8%, 2-5% preferred.
Located outside of natural or constructed drainageway	Move to a flatter location distant from a stream or well or eliminate
No visible gullies on site	Eliminate cause of gully and shorten the length of slope
At least 12" of soil cover over any rock areas	Fence out area that lacks adequate soil cover
Dry site	Fence off wet areas or eliminate livestock concentration area
Any potential runoff flows into a vegetated area or runoff collected and properly stored or treated	Runoff not going into vegetated area eliminated or redirected to filter area or collected and properly stored or treated
Runoff does not concentrate to one or more locations	Grade surface to redistribute runoff uniformly across lower edge
Untreated runoff does not have direct channel to waters of the PA	Redirect or redistribute runoff uniformly across lower edge and establish a filter area below the livestock concentration area
Area is 150' away from any water well, spring, wetlands	Establish a filter area below the livestock concentration area
Livestock access to stream is stable, with narrow access	Fence out stream and allow access only at stable crossing

Exhibit 3 - CNMP Planning Considerations for Evaluating Concentrated Livestock Areas

(Note: The regulatory term ACA is used in this exhibit adapted from the PA Nutrient Management Program Technical Manual. ***An ACA is a concentrated livestock area***.)

In general, the evaluation of the adequacy of ACA practices and conditions should consider the ability of the current practices and management to keep clean water clean and to collect, handle and treat contaminated runoff water before discharging into surface water or groundwater. Following are some factors to consider as part of the evaluation:

Site Characteristics

- Topography in and around the ACA
- Soil type in the ACA
- Soil cover or surfacing of the ACA
- Contributing drainage area up-slope of the ACA
- Roof runoff management
- Down slope of the ACA (impacted or buffered)
- Runoff controls or containment within the ACA
- Practices and facilities used to address runoff

Management and condition of the ACA

- Accumulation of manure on the ACA
- Standing water or muddy conditions
- Gullies or irregular surface
- Stocking rate (ft2/head)

Climatic Conditions

- 25-year, 24-hour storm event.

The following practices and conditions related to each identified ACA or "potential ACA" must be evaluated:

Location and Sizing

ACAs must be located and sized appropriately to minimize the impact on surface water and groundwater. These areas should meet the appropriate criteria set forth in PA Technical Guide Standard 561, "Heavy Use Area Protection," Standard 635, "Vegetative Treatment Area," Standard 393, "Filter Strip," and others.

Manure Collection

Collection of accumulated manure for land application or export from the operation is required on all ACAs. It must be determined if manure collection is practical and feasible based on the condition of the ACA surface. In addition, it must be determined if the operator has the equipment needed to collect manure from the ACA. Finally, the operator must agree to remove accumulated manure. The frequency of this removal must be described in the planned management of the ACA.

Upslope and Roof Stormwater

Each ACA must be evaluated for evidence of uncontrolled flow of stormwater into or across the area. This is particularly critical of ACAs where there is stormwater runoff from the area. In general, the axiom "Keep Clean Water Clean" applies. This "clean water" includes up-slope and roof runoff water. The intent is to divert clean water away from or around the manure sources. This will minimize the amount of contaminated runoff that must be treated before reaching surface or ground waters.

Contaminated Runoff Water

Each ACA must be evaluated for the existence of direct runoff or discharge of contaminated, inadequately treated water into surface water or groundwater. These conditions, when identified, must be listed as inadequate manure management practices and conditions. When evaluating runoff from these areas, consider the adequacy of storage or treatment facilities, downslope filter areas to control and treat the flow of contaminated runoff water before discharging into surface water or groundwater.

Animal Access To Streams

Animal access to surface water in animal concentration areas must be limited to properly installed stream crossings as needed for livestock and equipment.

(Adapted from PA Nutrient Management Program Technical Manual, June 2011)

Exhibit 4 -
P-Index Ratings and Pasture Management Guidance

P-Index Ratings Impacts on Pasture Management		
P-Index Value	P-Index Rating	Pasture Management Guidance
<80	Low to Medium	Nutrients can be applied to meet the Nitrogen crop requirement
80 to <100	High	Nutrients can be applied to meet the phosphorus crop removal
100 or higher	Very High	1. Grazing may not be conducted within 50 feet of a perennial or intermittent stream, a lake or a pond. 2. A prescribed grazing system shall be used to maintain an established stand of forage on the pasture area. 3. The stocking rate shall be limited to ensure that the level of phosphorus deposited by the animals does not exceed the level of phosphorus removal from the soil by vegetation in the pasture. 4. BMPs contained in the Pennsylvania Technical Guide may be used to meet the requirements in paragraphs (1) and (2). Other BMPs shall be approved by the Commission.

P-Index Ratings are sensitive to the condition of the pasture vegetation along the edge of the receiving water Attention to management in this area can reduce water quality risk, lower the P-Index Rating and provide additional nutrient management flexibility. Pastures within 100' of a stream, lake, pond or sinkhole can use a 35' setback for mechanical manure application and assign a "6" for Contributing Distance in the PA P-Index if the following criteria are met

- Duration, intensity, frequency and season of grazing in fields or CMUs adjacent to a stream, lake, pond or sinkhole will be planned and applied in such a manner that perennial vegetation and water quality are maintained or improved. The animal stocking rate and pasture usage practices called for in the nutrient management plan or associated grazing management plan, along with the restrictions outlined below, will provide this protection

1. Fields with poor, somewhat poor, or very poor drainage characteristics shall have grazing limited on these areas during times of high water table.
2. Ground cover provided by perennial vegetation shall be maintained at a level of 80% or more to minimize soil erosion and nutrient runoff. Plants identified by PDA as noxious weeds must be eliminated and controlled in these areas. For a listing of noxious weeds refer to Pennsylvania's Weed Control list (http://plants.usda.gov/java/noxious?rptType=State&statefips=42).
3. All animal concentration areas (such as feeding, watering or shade areas) within the pasture shall be addressed in such a manner as to eliminate the direct discharge of runoff from these areas from entering any adjacent waterbodies.
4. Livestock access to the 35 foot buffer area will be managed in such a way as to ensure at least an 80% vegetative cover at all times across the entire buffer area, other than on areas developed as stabilized stream crossings or stabilized watering areas. Maintaining an 80% vegetative cover across the 35-foot area can involve fencing off the 35-foot buffer area, establishing alternate off-stream water sources or watering systems, and/or establishing stabilized stream access for crossings or watering access for livestock. Other alternative management systems, structural practices or management techniques can be used to maintain the necessary 80% minimum vegetative cover throughout the 35 foot buffer area
5. No manure may be mechanically applied within the 35 foot buffer area.
6. Criteria 1 thru 5 must be met and implemented at the time the animals are grazing the pasture.

(Adapted from PA Nutrient Management Program Technical Manual, June 2011)

Exhibit 5 - Size Requirements[1] for Heavy Use Areas by Animal Type and Weight

Dairy Lot – Square Footage per Head			
Animal Weight (lbs.)	250-400 lb	600-800 lb	1000-1400 lb
Paved [2] Surface	30-40 SF	40-50 SF	60-75 SF
Unpaved [3] Surface	250-300 SF	350-500 SF	600-700 SF
Beef Lot - Square Footage per Head			
Animal Weight (lbs.)	Cow/calf pair (1200 lb)	600 lb	1000 lb
Paved Surface	60-75 SF	40-50 SF	50-60 SF
Unpaved Surface	400-500 SF	200-250 SF	300-400 SF
Unpaved Surface (no mounds)	550-650 SF	400-500 SF	500-600 SF
Unpaved Surface (with mounds)	20-45 SF	20-45 SF	20-45 SF
Sheep Lot - Square Footage per Head			
Animal Weight (lbs.)	50 -100 lb	100-150 lb	150-200 lb
Paved Surface	10-20 SF	20-30 SF	30-45 SF
Unpaved Surface	50-100 SF	100-125 SF	125-150 SF
Equine Lot - Square Footage per Head [4]			
Animal Weight (lbs.)	Mare/foal pair	400-600 lb	600-1200 lb
Stone Surface	600 SF	300 SF	400 SF
Improved Surface [5]	600 SF	300 SF	400 SF

Notes:

1 These size ranges do not supersede practice standard or specification criteria found in FOTG Section IV. The square footage recommendations are not the basis for financial assistance practice payment limitations. Refer to the current year program guidance for payment criteria or program limitations. When sizing Heavy Use Areas allow additional area around:

- Feed bunks & watering facilities – extend 6 feet from perimeter
- Traffic lanes for equipment – if necessary, allow a 10 to 12 foot wide travel path in addition to square footage calculated according to animal numbers/weight.

2 "Paved" means any hard surface that does not compress (leave a hoof print) when walked on when dry.

3 "Unpaved" is everything softer than paved.

4 A minimum of 1200 SF is required. This area can be increased according to the numbers above when there are more than 2 animals per turnout group. Increase square footage by area listed above for every animal over 2 in the turnout group. It is possible to have multiple turnout groups per area. Equine operations can limit the extent of improved exercise lots by sizing the area based on the largest group and not on the total animal numbers. Groups are rotated thru the area when it is not appropriate to have them on pasture.

Example – a turnout group of 5 mare/foal pairs
1200 + (3x600) = 3000 SF

5 Improved surfaces can include shredded bark, shredded tires, earthen with top soil removed, etc.

Pasture Guidance

NRCS Prescribed Grazing Job Sheet- Code 528

A prescribed grazing system consists of properly managed stands of forage crops that are managed in such a way as to protect the natural resources. Stocking rates and grazing management are linked together to accomplish the objectives.

DEFINITION

The controlled harvest of vegetation with grazing or browsing animals, managed with the intent to achieve a specified objective.

PURPOSES

This practice is to be applied as part of a conservation management system to maintain or improve the following: the health and vigor of desired plant communities, livestock health and productivity, soil condition, water quality or quantity and availability, economic stability and reduction of accelerated erosion.

RESOURCE MANAGEMENT SYSTEM

Prescribed grazing systems are a combination of practices installed and managed to protect the forage resources to reduce erosion, improve water quality and quantity, improve air quality, conserve energy, complement and or improve wildlife habitat, and promote economic viability of producers.

OPERATION AND MAINTENANCE

Apply the prescribed grazing plan annually, adjusting as conditions require. Maintain travel surfaces, stream crossings, feeding areas and other conservation practices to insure for protection of natural resources. Repair or replace fences to control livestock. Maintain the watering system to provide proper quality and quantity of water and adjust available forage or livestock numbers to assure proper forage utilization. In times of prolonged drought or excessive moisture, livestock shall be moved to an area for confinement and feeding until weather conditions allow for proper grazing.

SPECIFICATIONS FOR GRAZING SYSTEMS

Information that is needed to successfully plan and manage a grazing operation is included on this job sheet. Specifications are prepared in accordance with the NRCS Conservation Practice Standard Prescribed Grazing (Code 528). Formulas needed to calculate animal information, stocking rates, grazing information, available forage, additional feed needed, number of paddocks and total acres needed are presented in each section of the job sheet. If co-grazing, do not use this job sheet and instead contact your grazing specialist.

Specifications for Grazing Systems

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1. Landowner Objectives:

2. Animal Information **Total Live Weight = total number of animals * average animal weight**

	Benchmark	Option #1	Option #2	Option #3
Animal Type / Species				
Feed Supplement (lbs/animal/day)				
Number of Animals				
Average Animal Weight (lbs) *(See Table 2)*				
Total Live Weight (lbs)	-	-	-	-
% Body Weight DM Needs/Day *(See Table 4)*				
% Utilization *(See Table 5)*				

3. Stocking Rate Calculation (Whole Farm) = AU/Acres Planned to be Grazed

AU = total number of animals * average animal weight / 1,000 lbs.

	Benchmark	Option #1	Option #2	Option #3
Total Number of Animals Grazing				
Average Weight of Animal				
Animal Unit (AU)				
Acres Planned to be Grazed				
AU/Ac*				

*Note - If there is **more than 1 AU/Ac**, complete the pasture nutrient calculator to determine if the stocking rate

4. Grazing Information

	Benchmark	Option #1	Option #2	Option #3
Length of Grazing Season (days) *(Reference Table 3)*	0	0	0	0
Start Date				
Stop Date				
Number of Hours per Day on Pasture				
Shade Preferred?	YES	NO	NO	NO
Occupation Period (Days/Paddock)				

5. Forage Information

Pasture Fields **Lbs of Forage produced = Lbs DM/Ac. Produced/ Acres of Pasture**

Forage Species/Mix 1	
Turn in Height (in.) *(See Table 1)*	
Removal Height (in.) *(See Table 1)*	
Acres of Pasture	
Lbs DM/Ac. Produced *(See Table 1)*	
Lbs Forage Produced	0
Forage Species/Mix 2	
Turn in Height (in.) *(See Table 1)*	
Removal Height (in.) *(See Table 1)*	
Acres of Pasture	
Lbs DM/Ac. Produced *(See Table 1)*	
Lbs Forage Produced	0
Forage Species/Mix 3	
Turn in Height (in.) *(See Table 1)*	
Removal Height (in.) *(See Table 1)*	
Acres of Pasture	
Lbs DM/Ac. Produced *(See Table 1)*	
Lbs Forage Produced	0

Grazed Hay Fields **Lbs of Forage produced = Lbs DM/Ac. Produced/ Acres of Grazed Hay Fields**

Forage Species/Mix 1	
Turn in Height (in.) *(See Table 1)*	
Removal Height (in.) *(See Table 1)*	
Acres of Grazed Hay Fields	
Lbs DM/Ac. Produced *(See Table 1)*	
Lbs Forage Produced	0

5. Forage Information (continued)

Field Residue Gleaned **Lbs of Forage produced = Lbs DM/Ac. Produced/ Acres of Field Residue Gleaned**

Forage Species/Mix 1	
Acres of Field Residue Gleaned	
Lbs DM/Ac. Produced *(See Table 1)*	
Lbs Forage Produced	

Annual Crops Grazed **Lbs of Forage produced = Lbs DM/Ac. Produced/ Acres of Annual Crops Grazed**

Forage Species/Mix 1	
Turn in Height (in.) *(See Table 1)*	
Removal Height (in.) *(See Table 1)*	
Acres of Annual Crops Grazed	
Lbs DM/Ac. Produced *(See Table 1)*	
Lbs Forage Produced	

TOTALS

Total Acres of Forage = sum of acres of all fields	**0**
Total Forage Produced = sum of lbs forage produced from all fields	**-**

	Benchmark	Option #1	Option #2	Option #3
Total Forage Produced	-	-	-	-
Available Forage = total forage produced * pasture utilization rate	-	-	-	-

6. Forage Balance

1. Total lbs. Forage needed/day = total live weight * % body weight DM needs/day - supplementation in lbs.

2. Total lbs. Forage Needed/Season = total lbs. forage needed/day * total time (in days) grazing throughout season

3. Total lbs. Available Forage/Season = total forage produced * % pasture utilization rate

4. Remaining Forage after Grazing = total lbs. available forage/season - total lbs forage needed/season

5. Lbs. of Additional Supplement Needed/Animal/Day = (remaining forage after grazing / length of grazing season) / number of animals

6. Final Forage Balance (lbs.) After Grazing w/o Utilization % = remaining forage after grazing / % pasture utilization rate

7.Forage Balance as a Percentage of Total Forage Need = final forage balance (lbs.) after grazing w/o utilitation % / total lbs. forage needed/season

	Benchmark	Option #1	Option #2	Option #3
Total Live Weight				
Total lbs Forage needed / day[1]				
Total Time (in days) Grazing Throughout Season				
Total lbs Forage needed / season[2]				
Total lbs Available Forage / Season [3]				
				0
				0
Forage Balance* as a Percentage of Total Forage Need[7]				

0% shows a balanced forage to animal ratio. A negative % indicates a forage deficit and will require supplemental feed (as calculated above in Lbs. of Additional Supplement Needed/Animal/Day), additional acres of forage, or decreased animal numbers. A positive % indicates a surplus of forage; forage may need to be mechanically harvested or animal numbers can be increased.

Is Feed Management Needed?				

***NOTE - If deficit (shown as negative number) is greater than 70%, livestock are being fed supplements at a very high level. Feed Management should be considered to evaluate nutrient levels in manure.**

This area will be evaluated for nutrient management concerns for surface and groundwater. The management of the area must change or livestock access to the area will be restricted and the exercise area will be managed for grass cover and nutrient balance.

7. Acres Needed

1. Paddock Size in Acres = (total lbs. forage needed/day x occupation period) / (total forage from all fields / total acres of forage) / 5 rotations per year

2. Number of Paddocks = rest period in days / occupation period in days + 1

3. Acres Needed per Animal Unit = (paddock size in acres * number of paddocks) / AU

4. Acres Needed for ALL Animal Units = paddock size in acres * number of paddocks

	Benchmark	Option #1	Option #2	Option #3
Paddock Size in Acres	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Number of Paddocks				
15 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
30 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
45 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
60 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Acres Needed per Animal Unit				
15 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
30 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
45 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
60 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Acres Needed for ALL Animal Units				
15 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
30 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
45 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
60 day rest	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

8. Additional Requirements

Contingency Plan:

Sensitive Area Location & Treatment / Management Options:

Planned Enhancements / Additional Practices:

Table 1- Suggested PA Grazing Stubble Heights and Typical Yields for Forages in a Grazing System

Species	Height In Inches		Quality Yield* (lbs DM/Ac.)	
	Turn In	Removal	Good	Poor
COOL SEASON GRASS				
Kentucky bluegrass	4 to 6	1 to 2	4500	2000
Smooth bromegrass	6 to 8	2 to 3	6500	3000
Orchardgrass	6 to 8	2 to 3	8000	3000
Reed canarygrass	8 to 10	2 to 3	8000	3000
Ryegrass	6	1 to 2	7500	4000
Tall fescue	6 to 8	2 to 3	7000	3500
Timothy	8	4	6500	3000
GRASS-LEGUME MIX				
Alfalfa / Grass	6 to 8	2 to 3	10000	4500
Orchardgrass - ladino clover	6 to 8	2	6500	3000
Birdsfoot trefoil / Grass	6	3	8500	3500
Ryegrass - clover	6	1 to 2	6000	2750
Tall fescue - ladino clover	6 to 8	2 to 3	6000	3000
Red Clover / Grass	4 to 7	2	9000	6000
Kentucky bluegrass - white clover	4 to 6	1 to 2	3500	1500
LEGUMES				
Alfalfa	6	1 to 3	8000	4000
Ladino / White clover	6 to 8	2		
WARM SEASON GRASS				
Bermudagrass	4	1	5000	2500
Switchgrass	10 to 14	6 to 8	9000	6000
ANNUAL CROPS				
Small grains	4 to 6	3	3500	1500
Sorghum	18 to 30	10	10000	5000
Brassicas (spring seeding)	30 days	6	10000	5000
Brassicas (summer seeding)	30 days	6	9000	4000
CROP RESIDUES				
Corn Stover	N/A		6000	3000
Soybean	N/A		2000	1000

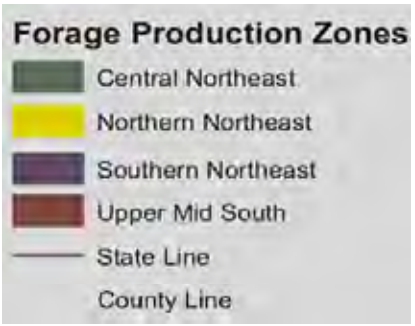
**Select Poor Quality Yields for soil types with low productivity. Select Good Quality Yields for soil types with high productivity.*

Table 2. Average Weights of Livestock

Type	Animal			
	Beef	Dairy	Sheep	Horse
Female	1300	1400	300	1300
Immature	900	1000	250	950
Growing	750	800	120	750
Young	550	600	95	400
Nursing	300	300	45	225
Male	2200	2600	450	1500

Table 3. Average Length of Grazing Season (Based on Forage Production Zone)

Pennsylvania Average	180 days
Central Northeast	180
Northern Northeast	165
Southern Northeast	195
Upper Mid-South	210



Forage Production Zone Map

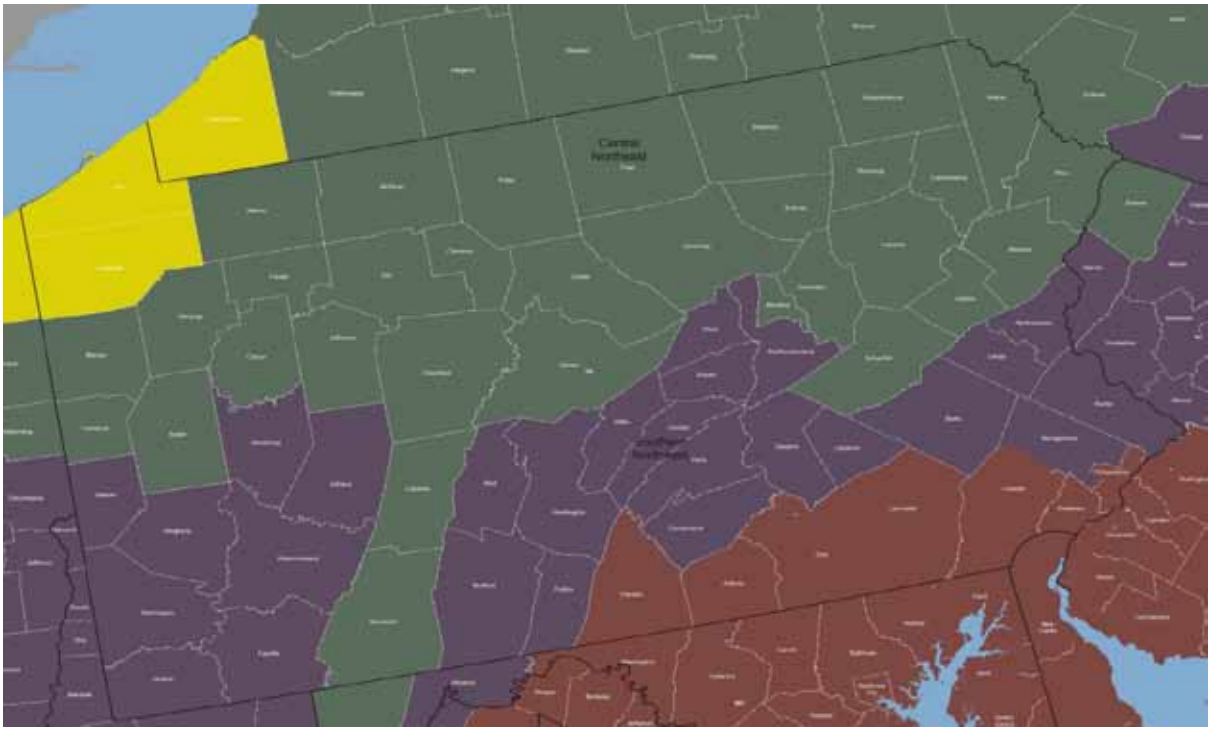


Table 4. Dry Matter Intake as % Body Weight (BW) per Day

Beef Animals	2.5%
Ewes- Lactating	2.5 - 4.0%
Horses	2.0%
Goats- Lactating	5.0%
Goats- Maintenance	1.8-2.0%
Lactating Dairy Cows- Pasture Only	3.0%
Lactating Dairy Cows- TMR/Grain (High Milk Production)	4.0%
Dry Cows/Heifers	2.4%

Table 5. Utilization Rate Based on Length of Paddock Occupation

Length of Occupation (days)	Utilization Rate (%)
1 day or less	80%
2-3 days	75%
4 days	70%
5 days	65%
6+ days	60%
Continuous	35%

Pasture Nutrient Calculator

Introduction

The Pennsylvania Nutrient Management Program's pasture nutrient calculator is to be used to evaluate the potential for excess nutrients to degrade water quality on pasture systems that have a pasture stocking rate greater than 1 AU/Acre and no mechanical applications of manure.If the pasture nutrient calculator shows that Total Available Nitrogen per acre does not exceed Net Nitrogen requirements to produce pasture forage, then there is no water quality problem from excess nitrogen. If the Total Available Nitrogen per acre exceeds the Net Nitrogen requirements, then adjust the pasture stocking rate downward until meeting or below the required nitrogen level for the forage.

Use the P Index screening tool to determine if there is a need to further evaluate water quality concerns from excess phosphorous. If part B of the P Index needs to be determined, follow the pasture management guidance for the P Index Rating found. Pasture mangement guidance for the P Index can be found in exhibit 4 of the Planning Guidance for Treating Concentrated Livestock Areas.

This calculator uses book values to estimate the nutrients coming from manure deposited by the animals grazing on the pasture or confined to a concentrated livestock area. On pastures where additional nutrients from mechanical applications of manure are applied, follow the procedure for evaluating the excess nutrients degrading water quality concern presented in NRCS practice code 590 and the Pennsylvania Nutrient Management Program. Code 590 and the PA NMP balance nutrients according to soil test data.

For grazing systems where excessive levels of potassium are a concern for the nutritional needs and production goals of the kinds and classes of livestock in the system, soil and/or forage testing should be conducted to determine if a problem exists.

The pasture nutrient calculator has an information input section. The shaded boxes show the calculations. The pasture nitrogen balance worksheet is included as it presents the formulas used in deriving the nitrogen calculations in the shaded boxes. Links to the appropriate Agronomy Guide Table are provided in the calculator and are also referenced again in the pasture nitrogen balance worksheet. As the Agronomy Guide is updated periodically, we recommend checking the links to ensure the current values are being used. For example only, the current version of the tables are provided in this tool.

Pasture Nutrient Calculator

Net Nitrogen Requirement (lb/A):	**50**
Total Available N Per Acre (lb/A):	**0**

Total Available N/A < Net N Requirement (OK)

Total Available N/A > Net N Requirement (Adjust stocking rate)

Information Input

	Benchmark	Option 1	Option 2	Option 3	
Number of Animals	0	0	0	0	
Weight	0	0	0	0	Agronomy Facts 54
Daily Manure Production					Agronomy Guide Table 1.2-13
Total Days	0	0	0	0	
Hours Per Day	0	0	0	0	
Manure N Analysis					Agronomy Guide Table 1.2-13
Manure P2O5 Analysis					Agronomy Guide Table 1.2-13
Acres	0.0	0.0	0.0	0.0	
Expected Yield (tons/acre)					
Planned Fertilizer N (lb/acre)					
Residual Manure N (lb/acre)					Agronomy Guide Table 1.2-14
N Availability					Agronomy Guide Table 1.2-14

Total Pounds of Nitrogen	0	0	0	0	0
Total Pounds of N/Acre		0			
N Recommendation		50			
Total Pounds of P2O5	0	0	0	0	0
AUs	0.00	0.00	0.00	0.00	0.00

P2O5 Crop Removal (lb/A):	**15**
Total Pounds of P2O5/A:	**0**

Pennsylvania Nutrient Management Program

Adapted from Pennsylvania Nutrient Management Program

For explanation of the formulas used to make the calculations see the Pasture Nitrogen Balance Worksheet.

Pasture Nitrogen Balance Worksheet

Area Identification [1]		Acres [1]		Expected Yield [2]	

[1] Operation Data Collection
[2] Estimating Forage Yields For Pastures
[3] Penn State Agronomy Guide - Table 1.2-6
[4] Penn State Agronomy Guide - Table 1.2-14B
[5] Penn State Agronomy Guide - Table 1.2-7
[6] Agronomy Facts 54 (Act 38 Standard Weights Table)
[7] Penn State Agronomy Guide - Table 1.2-13
[8] Penn State Agronomy Guide - Table 1.2-14A

N Recommendation (lb/A) [3]	
Planned Fertilizer (lb/A) [1]	
Residual Manure N [4]	
Residual Legume N (lb/A) [5]	
Net Nitrogen Requirement (lb/A)	

Calculation of Uncollected Manure Nitrogen & Available Nitrogen Per Acre				
Animal Group [1]				
Number of Animals [1] x				
Weight [6] ÷ 1000				
Number of AUs x				
Daily Manure Production Per AU (lb) [7] x				
Total Days Animals Have Access To Area [1]				
Hours Per Day Animals Have Access To Area [1]				
Total Uncollected Manure (tons) (AUs x daily production x days uncollected x hours uncollected ÷ 24 ÷ 2000)				
Manure Nitrogen Analysis (lb/ton) [7]				
Total Pounds of Nitrogen (tons x analysis)				
Pounds of Nitrogen Per Acre (pounds of N ÷ acres)				
Total Pounds of Nitrogen Per Acre (sum of each animal group)		**Total Available N/A < Net N Requirement** (Manure deposited at this stocking rate is under N balanced rate; may need supplemental N)		
Total Available N Per Acre (lb/A x N Availability Factor) [8]		**Total Available N/A > Net N Requirement** (Manure deposited at this stocking rate is over N balanced rate; stocking rate must be adjusted to reach N balance)		

February 2010

Table 1.2-13. Average daily production and total nutrient content of manure.

Animal type	*Daily production*	*Manure % dry matter*	*Analysis units*	*N*	*P_2O_5*	*K_2O*	*Comments*
Dairy cattle							
Lactating cows, liquid	13 gal/AU/day	<5	lb/1,000 gal	28	13	25	Production does not include dilution. Analysis includes dilution to approximately 5% solids.
Lactating cows, solid	106 lb/AU/day	12	lb/ton	10	4	8	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by dairy cows.
Dry cow	82 lb/AU/day		lb/ton	9	3	7	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by dairy dry cattle.
Calf and heifer	87 lb/AU/day		lb/ton	7	2	7	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by dairy young cattle.
Veal	3.5 gal/AU/day	4	lb/1,000 gal	36	27	55	Production and analysis do not include dilution.
Beef cattle							
Cow and calf	60 lb/AU/day	12	lb/ton	11	7	10	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by a beef cow and calf.
Calf	60 lb/AU/day	12	lb/ton	11	7	10	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by beef calves.
Steer	75 lb/AU/day	8	lb/ton	14	5	8	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by steers.
Swine							These comments apply to all swine categories:
Gestation	4 gal/AU/day	4	lb/1,000 gal	30	35	15	Production includes a typical amount of in-barn dilution water but not rainfall for an outdoor storage. Analysis includes dilution to approximately the % dry matter indicated.
Lactation	10 gal/AU/day	2	lb/1,000 gal	25	20	15	
Nursery	14 gal/AU/day	6	lb/1,000 gal	40	40	25	
Grow-finish	11 gal/AU/day	7	lb/1,000 gal	50	55	25	
Farrow to feeder	7 gal/AU/day	4	lb/1,000 gal	40	35	15	
Swine, anaerobic lagoon							These figures apply only to a treatment lagoon.
Supernatant	—	0.25	lb/1,000 gal	2.9	0.6	3.2	
Sludge	—	7.6	lb/1,000 gal	25	23	63	
Sheep	40 lb/AU/day	25	lb/ton	23	8	20	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by sheep.
Horse	45 lb/AU/day	20	lb/ton	12	5	9	No bedding included in production or analysis figures. Use these analyses for estimating nutrients deposited on pastures by horses.
Poultry							
Layer (364 d)[1]	26 lb/AU/day	41	lb/ton	37	55	31	
Pullet (126 d)[1]	48 lb/AU/day	35	lb/ton	43	46	26	
Light broiler (44 d)[1]	22 lb/AU/day	34	lb/ton	79	62	42	Production and analysis figures include litter.
Heavy broiler (57 d)[1]	20 lb/AU/day	25	lb/ton	66	63	47	Production and analysis figures include litter.
Turkey (tom) (123 d)[1]	13 lb/AU/day	60	lb/ton	52	76	42	Production and analysis figures include litter.
Turkey (hen) (88 d)[1]	11 lb/AU/day	65	lb/ton	73	88	46	Production and analysis figures include litter.

Note: When possible, have manure analyzed. Actual values may vary over 100 percent from averages in the table.

1. Typical production days.

Table 1.2-6. Nitrogen Recommendations for Agronomic Crops.

Crop	Recommendation (lbs N/unit of expected yield)	Comments
Corn grain	1	For better N efficiency, delay application of the nitrogen until the corn is between 10 and 20 inches tall. If the field has a history of manure and/or legumes, delay all of the N. If there is no history of manure and/or legumes, split the N, applying one-third near to planting and delaying the balance. Adjust this recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 and 1.2-15). The PSNT or chlorophyll meter test can be used to refine N recommendations for corn, especially where manure is major nutrient source.
Corn silage	7	For better N efficiency, delay application of the nitrogen until the corn is between 10 and 20 inches tall. If the field has a history of manure and/or legumes, delay all of the N. If there is no history of manure and/or legumes, split the N, applying one-third near to planting and delaying the balance. Adjust this recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 and 1.2-15). The PSNT or chlorophyll meter test can be used to refine N recommendations for corn, especially where manure is major nutrient source.
Grain sorghum	0.75	Adjust the recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 and 1.2-15).
Forage sorghum	7	Adjust the recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 and 1.2-15).
Oats	0.8	Apply the N with any other fertilizer before planting. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 and 1.2-15).
Wheat/rye	1	If plants did not tiller well, apply N by mid-March, otherwise apply any time up to growth stage 5. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 and 1.2-15).
Barley	0.8	If plants did not tiller well, apply N by mid-March, otherwise apply any time up to growth stage 5. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 and 1.2-15).
Small grain silage	17	Apply at greenup in the spring.
Grass hay	50	Split the nitrogen recommendation and apply it based on the expected yield for each cutting. For grass-legume mixtures, if the legume is more than 50% of the stand, the field should be managed as a legume; thus, no nitrogen is recommended. If plants did not tiller well, apply N by mid-March, otherwise apply any time up to growth stage 5. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 and 1.2-15).

Table 1.2-7. Residual Nitrogen Contribution from Legumes[1]

Previous crop	Percent Stand	High-productivity fields	Moderate-productivity fields	Low-productivity fields
		Soil productivity group[2] 1	Soil productivity groups[2] 2 & 3	Soil productivity groups[2] 4 & 5
		Nitrogen credit (lb/A)		
First year after clover or trefoil	>50	90	80	60
	25–49	60	60	50
	<25	40	40	40
First year after alfalfa	>50	120	110	80
	25–49	80	70	60
	<25	40	40	40
First year after soybeans harvested for grain.		---- 1 lb N/bu soybeans ----		

1. When a previous legume crop is checked on the Penn State soil test information sheet, the residual nitrogen for the year following the legume is calculated and given on the report. This credit should be deducted from the N recommendation given on the soil test report.

2. See table 1.1-1 in the basic soils section for information on soil productivity groups.

Table 1.2-8. Nitrogen Removal by Legumes.

Legume crop (no nitrogen application recommended)	Pounds of N removed/ unit of yield	Pounds of N removed/A	Comments
Alfalfa (5 tons/A)	50	250	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.
Soybeans (40 bu/A)	3.2	130	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.
Trefoil (3.5 tons/A)	50	175	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.
Clover (3.5 tons/A)	40	140	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.

Table 1.2-9. Typical Crop Nutrient Removal for Phosphorus and Potassium.

Crop (units)	Per unit of yield		Typical yield/A	Removal for given yield	
	P_2O_5	K_2O		P_2O_5	K_2O
Corn (bu)	0.4	0.3	125 (bu)	50	40
Corn silage (T)[1]	5	11	21 (T)	105	230
Grain sorghum (bu)	0.6	0.8	125 (bu)	75	100
Forage sorghum (T)[1]	3	10	15 (T)	45	150
Sorghum/sudangrass[1]	7	7	15 (T)	105	105
Alfalfa (T)[2,3]	15	50	5 (T)	75	250
Red Clover (T)[2,3]	15	40	3.5 (T)	55	140
Trefoil (T)[2,3]	15	40	3.5 (T)	55	140
Cool-season grasses (T)[2,3]	15	50	4 (T)	60	200
Bluegrass (T)[2,3]	10	30	2.5 (T)	25	75
Wheat/rye (bu)[4]	1	1.8	60 (bu)	60	110
Oats (bu)[4]	0.9	1.5	80 (bu)	70	120
Barley (bu)[4]	0.6	1.5	75 (bu)	45	110
Soybeans (bu)[4]	1	1.4	40 (bu)	40	55
Small grain silage (T)[1]	7	26	6 (T)	40	160

1. 65% moisture.
2. For legume-grass mixtures, use the predominant species in the mixture.
3. 10% moisture.
4. Includes straw.

Table 1.2-14. Manure nitrogen availability factors for use in determining manure application rates based on planning conditions.

A. Current Year

To use this table, find the ***planned manure application season*** in the left column, then move to the right in that row and select the ***target crop utilization***. Continue to the right in that row to find the ***nitrogen availability factor*** for the ***planned manure application management***.

			Nitrogen availability factor[1]		
Planned manure application season	*Planned manure target crop utilization*	*Application management*	*Poultry manure*	*Swine manure*	*Other manure*
Spring or summer	Spring utilization by grass hay and small grains. Summer utilization by corn, other summer annuals, and grass hay.	Incorporation the same day	0.75	0.70	0.50
		Incorporation within 1 day	0.50	0.60	0.40
		Incorporation within 2–4 days	0.45	0.40	0.35
		Incorporation within 5–7 days	0.30	0.30	0.30
		Incorporation after 7 days or no incorporation	0.15	0.20	0.20
Early fall[2]	Fall and spring utilization by grass hay and small grains.	Incorporation within 2 days	0.50	0.45	0.40
		Incorporation within 3–7 days	0.30	0.30	0.30
		Incorporation after 7 days or no incorporation	0.15	0.20	0.20
	Following summer utilization by corn and other summer annuals.	All situations	0.15	0.20	0.20
Late fall or winter[3]	Spring utilization by small grains and grass hay	All situations	0.50	0.45	0.40
	Following summer utilization by corn or other summer annuals	No cover crop	0.15	0.20	0.20
		Cover crop harvested for silage	0.15	0.20	0.20
		Cover crop used as green manure	0.50	0.45	0.40
Grazing	Late spring through early fall grazing	Manure deposited more or less continuously by grazing cattle	—	—	0.20
	Year-round grazing	Manure deposited more or less continuously by grazing cattle	—	—	0.30

1. Multiply this factor times the manure N content to estimate the manure N available for the planning conditions.
2. Early fall would be when it is still warm enough for plant growth and microbial activity to continue (soil temperature >50ºF at 2 inches).
3. Late fall and winter is when it is so cold that there is no plant growth or microbial activity (soil temperature <50ºF at 2 inches).

B. Historical Frequency of Manure Application on the Field

To use this table, determine the frequency of manure application and go across to the amount of residual N that is available from past manure applications. Deduct this amount of residual N from the basic N recommendation before determining any additional fertilizer or manure application rates.

	Residual N availability (lbs N/A)
Rarely received manure in the past (<2 out of 5 years)	0
Frequently received manure (2–3 out of 5 years)	20
Continuously received manure (4–5 out of 5 years)	35

Estimating Forage Yields For Pastures

Management Intensive Grazing

The following are expected yield ranges for different soils and fertility levels when utilizing management intensive grazing systems. Yields can increase or decrease by 1 ton when increasing or decreasing soil fertility

Species *	Good Soils & High Fertility Levels	Average Soils & Average Fertility Levels	Poor Soils & Poor Fertility Levels
Orchardgrass with a moderate yielding legume species (25 to 40%)	7.0 tons/ac/yr	5.0 tons/ac/yr	2.5 tons/ac/yr
Perennial Ryegrass with a moderate yielding legume species (25 to 40%)	5.0 tons/ac/yr	3.5 tons/ac/yr	2.0 tons/ac/yr
Timothy or Bromegrass (no legume present)	6.5 tons/ac/yr	4.5 tons/ac/yr	3.0 tons/ac/yr
Kentucky Bluegrass with 25 to 40% legume present	4.0 tons/ac/yr	2.5 tons/ac/yr	1.5 tons/ac/yr
Reed Canarygrass	8.0 tons/ac/yr	5.5 tons/ac/yr	3.5 tons/ac/yr
Orchardgrass	8.0 tons/ac/yr	5.5 tons/ac/yr	3.5 tons/ac/yr

Rotational Grazing

The following are expected yield ranges for management and soil fertility levels when utilizing rotational grazing systems.

Good Management & High Yielding Soils	Poor Management & Poor Yielding Soils
4 to 5 tons/ac/yr	2 to 3 tons/ac/yr

Permitting Guidance

NPDES Construction Permitting Requirements for Ag Operations

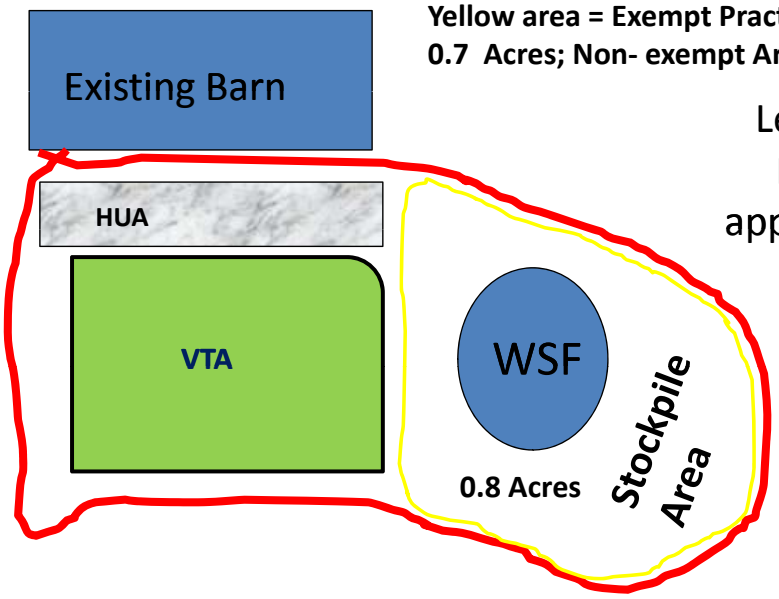
Activity	NPDES if 1 Acre or Greater of Disturbance	Have to Address Post Construction Stormwater Management	Subject to Riparian Buffer Requirements if in HQ/EV Waters
Building a house	yes	yes	yes
Building a barn	yes	yes	yes
Building chicken/hog houses	yes	yes	yes
Building manure storage facility	yes	yes	yes
Building bunk silos	yes	yes	yes
Installing swales, diversions, waterways, filter strips, terraces	no	no	no
Paving barnyard with associated BMPs	no, if covered in conservation plan	no, but must have BMPs to address the impervious area	no
Paving animal walkways	no, if covered in conservation plan	no, but must have BMPs to address the impervious area	no
Building roofs with associated BMPs	no, if covered in conservation plan	no, but must have BMPs to address the impervious area	no

These activities could also require other permits as applicable
CAFO activities are subject to regulation under a CAFO NPDES permit

2/20/11 Version

Exempt and Non-exempt Disturbed Areas for CH 102 Permitting

Red area = Total Disturbed Area: 1.5 acres needing E&S



Yellow area = Exempt Practices in Conservation plan: 0.7 Acres; Non- exempt Area WSF: 0.8 Acres

Less than 1 acre, no NPDES permit, but apply all E&S controls

Frequently Asked Questions (FAQs) for Chapter 102 Regulation Revisions

May 20, 2011*

* Check DEP website for most current version:
http://www.portal.state.pa.us/portal/server.pt?open=514&objID=554331&mode=2

I. General Permitting

1. **Projects that are 1 acre or greater but less than 5 acres of earth disturbance without a point source discharge [not involving agricultural plowing and tilling, animal heavy use areas, timber harvesting, road maintenance or oil and gas activities].**

   Under the January 2000 Chapter 102 regulations, these projects did not need an NPDES permit. If such a project approved under the 2000 regulations has started earth disturbance work or has received an E&S plan acknowledgement prior to November 19, 2010, they will not be required to obtain an NPDES permit.

   If they have started earth disturbance work prior to November 19, 2010, and a routine inspection or inspection reveals violations at the site, the Department or conservation district may require the operator to apply for an NPDES permit based on the severity of the violations.

2. **Projects that are 1 acre or greater but less than 5 acres of earth disturbance with a point source discharge.**

   These projects should have applied for an NPDES permit prior to November 19, 2010. If they do not have permit coverage they must apply and obtain an NPDES permit prior to commencing earth disturbance activity.

3. **Projects that propose to disturb 1 or more acres of earth disturbance after November 19, 2010.**

   These projects must apply for and obtain NPDES permit coverage prior to commencing earth disturbance activity.

4. **Permit applications have been submitted to the conservation district office or the Department regional office prior to November 19, 2010 and are in the permitting process pipeline on the effective date of the new 102 regulations.**

   If the application package has been submitted by November 19, 2010, and found to be administratively complete, the applicant may proceed under the previous requirements. This would include the permit fees to be paid. The applicant would not be required to pay additional permit fees, including the $100.00 per disturbed acre fee.

   If the permit application package has been submitted prior to November 19, 2010, but is found administratively incomplete, the Department or conservation district will provide the applicant 60 days to provide a complete application. If after 60 days the application remains incomplete, the Department will consider the application withdrawn, and the applicant must submit a new application that meets all new permit requirements and pay any additional base application and disturbed acre fees.

   The applicant does not have to pay new fees for additional submissions requested in response to a deficiency letter unless the application is considered withdrawn and is returned.

5. **Phased projects approved prior to November 19, 2010.**

   The applicant for a phased project must submit their permit application showing all planned future phases for the entire project site. The detailed E&S and PCSM plans must be submitted

for the initial phase of the project. If the application package was submitted prior to November 19, 2010, and found to be administratively complete, they do not need to meet any new requirements contained in the 102 regulations that did not exist prior to November 19, 2010 for the initial phase of the project.

However, future phases that are submitted after November 19, 2010 are considered new earth disturbance activities and are subject to all the requirements of the Chapter including all the post construction requirements in Section 102.8.

Applicants who believe they cannot meet the buffer requirements in future phases submitted after November 19, 2010 may request a waiver of the buffer requirements under 102.14(d)(2)(vi). This waiver may be granted by the Department or by the conservation district (after consultation with the Department) upon a demonstration by the applicant that there are reasonable alternatives for complying with this section that any existing riparian buffer is undisturbed to the extent practicable, and the action will otherwise meet the requirements of Chapter 102.

6. **A project was issued an erosion and sediment control plan approval letter prior to November 19, 2010, which did not require an NPDES permit (less than 5 acres and no point discharge). Are they exempt from the permit?**

   If the project was issued an E&S plan approval letter prior to November 109, 2010, they will not need to get an NPDES permit on November 19, 2010. However, if in the future there are any compliance issues, then the conservation district/the Department could come back and require them to obtain an NPDES permit for the site.

7. **If a NPDES is set to expire but under the "old" regs, it would not need to be renewed because it is under 5 acres and no longer has a point source discharge, will that permit still be required once the new regs take effect because of the 1 acre threshold?**

   If there is still 1 acre or more of disturbance remaining on that permit, it would need to be renewed. If the remaining disturbance is less than 1 acre, it would not need to be renewed.

II. Fees

1. **Why are Pennsylvania municipalities required to pay the permit application fees when they are exempt from application fees for other Department activities?**

   The regulation does not exempt municipalities from the fee and therefore the fees are required.

2. **If an application is incomplete and considered withdrawn, does an applicant have to submit the entire fee again with its resubmission?**

   Yes. The application will not be returned to the applicant. Both the administrative filing fee and the disturbed acre fee will need to be resubmitted.

3. **How are fees for phased projects to be handled?**

   Phased projects will pay the initial base fee and fee for the disturbance area of the phase being proposed. Disturbed acre fees will need to be paid for additional phases as they are proposed. The initial base fee will not need to be paid with each subsequent phase submittal.

III. Agriculture

1. **An agricultural operation expands its agricultural plowing and tilling activities or animal heavy use areas by cutting down woodland and removing the trees and stumps from that area.**

   No permit is required as agricultural plowing and tilling and animal heavy use areas are exempt from NPDES permit coverage. The implementation and maintenance of erosion and sediment control BMPs are required to minimize the potential for accelerated erosion and sedimentation. If the earth disturbance will exceed 5,000 square feet or more of land, a written erosion and sediment plan is required for the activity. In addition the owner of the agricultural operation must revise their conservation plan to reflect the change in the operation with the additional plowing and tilling fields or animal heavy use areas.

2. **An agricultural operation is proposing to construct a new farm building.**

The construction of a farm building is not part of an agricultural plowing and tilling activity or an animal heavy use area and would be subject to the same permitting requirement thresholds as other construction activities.

3. **102.4(a)(4)(ii)- Does it mean 25% uniform coverage over the entire field, or simply 25% of the field covered, or 100% coverage 25% of the time? Is the cover to be vegetative cover or crop residue cover?**

   Cover includes crop residue and vegetation. The percentage of cover means at least 25% cover over the entire field at any given time.

4. **Define the timeframe for which the 25% cover is required. When will 25% cover be measured? Is 25% cover 365 days per year? One could work a field after corn silage to have less than 25% cover, drill a cover crop of rye and in 3-4 weeks have a greater than 25% cover. Please define 25% cover.**

   Cover includes vegetation and crop residue. The percentage of cover means at least 25% cover over the entire field at any given time. The use of 25% cover is also found in the setbacks and buffer requirements in Chapter 83 regulations (Chapter 83.294(f)(5)). A method of calculating cover is found in NRCS guidance (503.43) for estimating crop residue cover.

5. **In Section 102.4(a)(1), are there specific agricultural BMPs? If so, where can they be found?**

   The regulations specifically identify several BMPs for animal heavy use areas listed in 102.4(a)(4)(iii), which also includes a reference to the NRCS Conservation practice standards. In addition, other technical standards and guidance documents for agricultural activities may be used when approved by the Department.

6. **102.4(a)(4)(i) would create an E&S plan requirement that limits soil loss to T. NRCS conservation plans can allow for two times T within their alternative cropping system.**

   To meet the requirements of this regulation an E&S plan must meet T over the rotation. An NRCS written plan allowing for two times T over the rotation would not meet the requirements of this regulation.

IV. Non-agricultural E&S Plans

1. **Section 102.4(b)(5)(iii)- The E&S plan is to contain drawings and narrative describing the characteristics of the past earth disturbance activity, including past land uses. This must define how far back in the past this requirement extends.**

   The Department's application requires applicants to designate existing land uses for the project site for the preceding 5 years, and the previous land use for the past 50 years or longer if known.

V. Post Construction Stormwater Management General

1. **102.8(a) would require a PCSM plan for many small repair activities that do not generate post-construction stormwater management issues of any type.**

   On minor projects where there is little or no change in the runoff characteristics from the site, the PCSM plan may only be a sentence or two describing the situation.

2. **102.8(g)(2)- If there is a conflicting criteria in the Act 167 plan and Chapter 102, which one controls?**

   The expectation is that an approved and current Act 167 plan needs to be at least as stringent as the state regulatory requirements. If the Act 167 Plan includes an alternative requirement that identifies a more stringent requirement that protects and maintains water quality and existing and designated uses, then the more stringent requirement of the Act 167 Plan would apply.

3. **102.8(h)(2)- What year storm does non-discharge relate to? If non-discharge alternatives are utilized, does the PCSM Plan have to include ABACT? (Is there such a thing as an E&S non-discharge alternative?)**

   Non-discharge relates to the 2 year/24 hour storm event. If no net change in rate, volume, or water quality from the site can be met simply by implementing non-discharge alternatives, the PCSM plan would not need to include ABACT BMPs. Non-discharge alternatives for PCSM include the following: alternative siting,

low impact development, vegetated riparian buffers, infiltration, oil and grease and grit removal, and water reuse. Non-discharge alternatives for E & S control include the following: alternative siting, limiting area of disturbance, limiting extent and duration of disturbance, and vegetated riparian buffers.

4. **PCSM Requirements - (f) Plan Content Item # 7: Additional guidance will be needed regarding "a schedule of inspections for critical stages of PCSWM BMP Installations. Will all BMP's have a need for inspections or only infiltration facilities?**

   The regulation only specifies that the licensed professional be on site for inspections for critical stages (which include the installation of underground storage facilities, the installation of structurally engineered facilities, and anything else identified as critical by either the plan designer, Department or the conservation district). However, there is nothing to say that the plan designer, Department or the conservation district can't identify other parts of the PCSM BMP installation as being critical and require inspections at those stages as well.

VI. Post Construction Stormwater Management – Exceptions and Waivers to Buffering

1. **Additional clarification and discussion is requested regarding the scope of post-construction stormwater management for projects where the project site is restored to pre-construction conditions. This is specifically germane to the utility industry and certain oil and gas activities (underground pipelines), the site is restored to its original condition. In such a situation, there are no new or specific PCSM BMPs because the post construction site is restored to its condition prior to earth disturbance.**

   The requirements of a post construction stormwater management plan are met when the person conducting the earth disturbance activity for pipelines or other utilities restores or reclaims the site back to natural conditions.

2. **Do PennDOT bridge projects need to fully comply with riparian buffer guidelines since many of their projects inherently need to cross and traverse riparian areas?**

   Generally no. There are both exemptions and waiver provisions that apply to PennDOT bridge projects. The exemption allows for road maintenance activities to occur without requiring a riparian buffer so long as the existing riparian buffer is protected to the greatest extent possible. The waiver allows for linear projects such as roadways to occur without requiring a riparian buffer so long as the existing riparian buffer is protected to the greatest extent possible and provided that the Department or conservation district (after consultation with the Department) may grant the waiver request.

VII. Post Construction Stormwater Management – Long-Term Operation and Maintenance

1. **Section 102.8(f)(10)- This requirement states that a PCSM plan must provide for a long-term O&M schedule that provides for the inspection of the PCSM BMPs. Who is doing the inspection?**

   The conservation district inspects the PCSM BMPs during construction. The applicant or another party identified as the person responsible as part of their PCSM O&M plan, is required to inspect the BMPs to ensure that they are working adequately.

2. **102.8(m)(2) How do we ensure that a PCSM O&M instrument has been recorded?**

   The Notice of Termination will include a section that will require the applicant to show proof of filing the instrument for PCSM O&M with the recorder of deeds. This may take the form of an attachment to the NOT, a checkbox, a receipt of recording with the recorder of deeds, or some other way. Notations in plan notes are not sufficient.

3. **Long-term maintenance of many of the BMP's will be lot owners... Will each lot owner need to be identified and sign an agreement that they are responsible for LONG-TERM Maintenance.**

   Yes, each lot owner will need to provide for long-term O&M of the BMPs that are on their property. They can choose to use a third party (such as a homeowners association, etc.) to do the O&M for them.

4. **What if the permittee sells a lot and the lot is sold by the new owner prior to the NOT being filed? Would it be sufficient that the Recorder of Deed instrument records the responsible party for maintenance of PCSM BMP's**.

   Yes, if the paperwork associated with the NOT lags behind because of quick sales, it would be sufficient that the instrument is recorded so that the responsibility transfers with the property (although we would want the process to eventually be finished with the submission of the NOT). The important thing is that the new owner understands that they have a responsibility for structures on their property.

VIII. Riparian Buffers

1. **Is Section 102.14 applicable only if the earth disturbance activity requires an NPDES permit? If only a Chapter 105 permit is required, does Section 102.14(a)(2) provide the Chapter 105 program with the authority to require forested riparian buffers? If so, please explain under what circumstances. Will PennDOT be required to increase the length of bridges, which are adequately designed hydraulically in order to accommodate a new buffer area? If a project located in an EV watershed abuts a stream for a mile and approximately 0.25 mils of roadway work will involve significant disturbance, would the buffer be applied from one end of the project to the other or only in the vicinity of the earth disturbance?**

   The buffer requirement does not carry over into Chapter 105 regulations unless the activity requires a permit (either E&S or NPDES) under Chapter 102.

2. **102.14(a)(1)(i)- Does the description here include Exceptional Value wetlands? Example, the site is along a stream which is classified as CWF, but is on the list of trout producing streams. An area of wetlands tributary to that stream would be EV, but the actual watershed would be CWF…).**

   There is no buffer requirement for wetlands within this regulation.

3. **102.14(d)(1)- If a project site abuts a stream, clarify whether a riparian buffer on "both sides" if the project site is not on both sides of the stream. Or, if the site is on both sides of a stream, but earth disturbance is proposed on one side, is a buffer required on both sides? Or, what if the project site is within the required riparian buffer distance, however, there is another property between the proposed project site and the stream?**

   Riparian buffers would be required on property controlled by the applicant and would not be required on adjacent property. The definition of project site includes "the entire area of activity, development, lease or sale…," therefore, if the site is on both sides of a stream, an appropriate buffer would be required on both sides of a stream.

4. **The Chapter 102 regulations require riparian buffers if earth disturbance activity is within an EV watershed. Must the entire activity fall within the EV watershed to trigger the buffer requirements? What if only a portion is in an EV watershed? Must the entire project, even the non-EV portion then incorporate the buffer requirements?**

   The specific portion of the proposed activity that falls within 150 feet of an EV or HQ watershed requires buffer.

5. **Will work done to develop or enhance buffer zones require 105 permits?**

   Not unless the work would require changes to the course, current, or cross section of the watercourse, floodway, or wetlands.

6. **102.14 - Does anything need to happen with respect to riparian buffers in a special protection watershed that is attaining its uses if the project is at least 150 feet away from waters of the commonwealth?**

   Riparian buffers are only required if the project site contains or is within 150 feet of the water. If the project site is greater than 150 feet away from the special protection water, the person proposing the activity is not required to implement the buffer. Applicants still have to comply with all other regulatory requirements, including antidegradation provisions.

7. **102.14 - Who will qualify the validity of the standards listed in 102.14(b)? (i.e. composi-**

tion, zone width, etc.) Burden on the applicant to document in the application via site plans? Any expectation for the Department/conservation district staff to verify on site?

Since riparian buffers are a type of PCSM BMP, the answer will vary depending on if the conservation district is delegated to do post-construction stormwater management. If the conservation district is delegated, verification would be part of their delegated duties. If the conservation district is not delegated, these determinations would be done by the Department Regional Office. The burden will be on the applicant to provide accurate information via their riparian buffer management plan. The riparian buffer management plan will contain an inspection schedule, so the applicant will need to conduct routine inspections for the site. However, the Department or conservation district can choose to inspect the riparian buffer at any time and during the normal course of a site compliance inspection.

8. **Does potential earth disturbance associated with a mandatory buffer factor into the acreage for purposes of determining whether or not a permit is required?**

   No. A mandatory buffer would not be considered until a permit is triggered for a project. However once a permit is triggered then any disturbance in the area of the riparian buffer necessary for bringing the buffer into compliance must be included in the earth disturbance calculations, including calculations for fees. A separate E&S plan for the riparian buffer is not required as a buffer management plan is included as part of the PCSM plan.

9. **What about tree planting projects not associated with land development projects but that are greater than 1 acre (such as a TreeVitalize project or Growing Greener grant)? Is an E&S plan required to be submitted and approved for the project? And if the project area is 1 acre or greater, does the NPDES permitting requirement apply, including that a PCSM plan be submitted?**

   Tree planting projects alone do not trigger NPDES requirements whether or not 1 acre or more is disturbed since this type of project is considered a silvicultural activity. An E&S plan would not need to be submitted for review.

IX. Municipal coordination

1. **What types of approvals would a municipality need to withhold approval of until an NPDES permit is issued?**

   The types of approvals for which municipalities would need to withhold approval would include those that allow for the commencement of earth disturbance activities. This would include preliminary subdivision or land approvals, or building permits. It would not include long-term planning approvals including zoning approvals, planning approvals or sewage planning modules.

Outreach

A Conservation Plan or Ag E&S plan used to meet Ch. 102 requirements must be available for review at the farm.

Contact

Your County Conservation District,
http://pacd.org/your-district/find-your-district/

Your Local USDA NRCS Office,
www.pa.nrcs.usda.gov/

A Qualified Private Consultant, or

DEP Regional Offices
www.depweb.state.pa.us

for more details!

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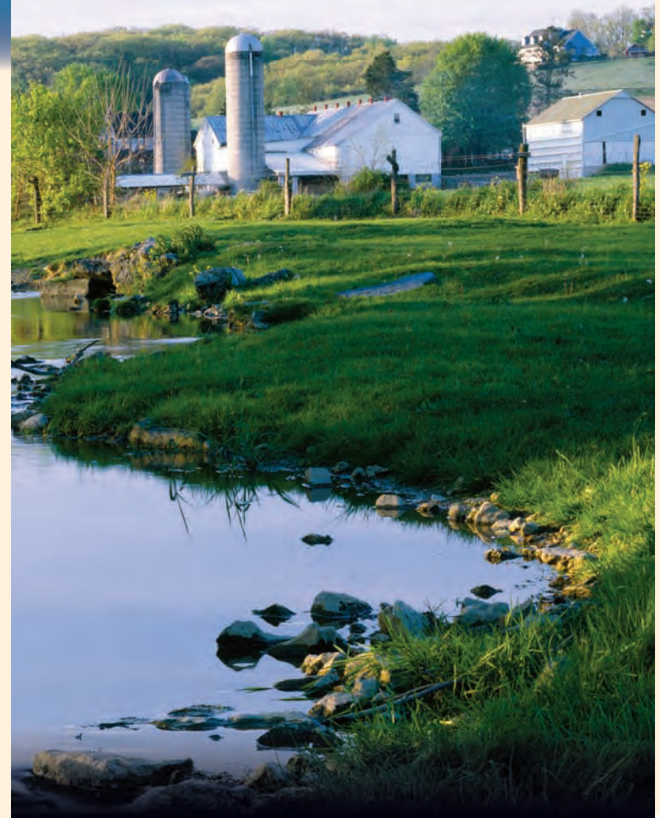
Agricultural Environmental Regulations:

Am I In Compliance?



Sediment and Erosion Control Requirements for Agricultural Activities

January 2011

Am I in compliance with Pennsylvania's erosion, sedimentation and stormwater regulations affecting agricultural operations?

This can probably best be answered by a trained Conservation District technician, a trained Natural Resources Conservation Service (NRCS) technician or a private consultant knowledgeable in conservation planning, nutrient management and permitting. But, read on for more information.

Pennsylvania's Chapter 102 (Erosion and Sediment Control and Stormwater Management) regulations have existed since 1972. On November 19, 2010, additions and changes to the regulations took effect. All farms are required to develop and implement a written plan to reduce erosion when plowing and tilling (includes no-till cropping) and Animal Heavy Use Areas (AHUA) disturbing more than 5,000 sq. ft. Under Ch. 102, all agricultural plowing and tilling and AHUAs are required to implement agricultural Best Management Practices (BMPs).

Many farmers are familiar with the term conservation plan, which is a "*written plan that identifies conservation practices and includes site specific Best Management Practices (BMPs) for agricultural plowing and tilling activities and animal heavy use areas*". An NRCS conservation plan can be used to comply with the new Chapter 102 regulations if it meets all of the new requirements.

Proper use of cover crops

Much more vegetation is needed along stream banks

Under Ch. 102,
ALL agricultural plowing and tilling and Animal Heavy Use Areas (AHUA) are required to implement agricultural Best Management Practices (BMPs).

MAIN CHANGES:

- ✔ Ch. 102 always stated plowing and tilling needed a conservation plan; now Animal Heavy Use Areas also must be covered by the conservation plan or Ag E&S plan.
- ✔ Areas within 100 ft of a stream must maintain a minimum 25% plant cover/crop residue or implement additional BMPs.

Areas lacking vegetation must be addressed

Animal Heavy Use Areas (AHUA)

- ✔ Defined as "*Barnyard, feedlot, loafing areas, exercise lot or other similar areas on agricultural operations where due to the concentration of animals it is not possible to establish and maintain vegetative cover of a density capable of minimizing accelerated erosion and sedimentation by usual planting methods*".
- ✔ Also recognized as non-pasture areas for animals outside of the barn
- ✔ Similar to Animal Concentration Areas (ACA), defined as "*a livestock area that will not maintain a growing crop, or where nutrients are applied in excess of crop need*".
- ✔ A farmer must prevent pollution to a water body from AHUA runoff
- ✔ The conservation plan or Ag E&S plan must include all AHUAs on the agricultural operation.

If your operation has an AHUA or ACA

- ✔ Make sure NO polluted runoff from these areas is reaching a stream
- ✔ Manage stream buffers, keep them green
- ✔ Divert roof water and clean surface water away from these areas
- ✔ Keep clean water clean and funnel dirty water to the manure storage or treat it with a BMP

NPDES Permits

The National Pollutant Discharge Elimination System (NPDES) permit for construction activities contains federal and state requirements for earth disturbance activities that disturb 1 acre or more. Activities like plowing and tilling do not require an NPDES permit, but agricultural construction which will disturb 1 acre or more (including but not limited to barn expansions, new animal housing, manure storage facilities, compost facilities) **does** require a permit. The permit covers runoff created during construction and stormwater generated after the construction activity is completed. A Post-Construction Stormwater Management Plan is required, along with an E&S Control Plan, as part of the permit.

BMPs including but not limited to terraces, waterways and diversions are not required to have an NPDES permit if the BMP is installed as part of a conservation plan or Ag E&S plan.

For land clearing that expands an agricultural operation's ag plowing and tilling activities or animal heavy use areas, no permit is required. The implementation and maintenance of E&S BMPs are required. If the area exceeds 5,000 square feet, a written E&S plan is required. The operation must also revise its existing conservation plan or ag E&S plan to reflect the change in operation with this new acreage.

*Any agricultural construction activity **affecting 1 acre or more** requires a Stormwater Management Plan and an NPDES permit, the same as required for all other types of construction.*

Not good for animal or environmental health

Streambank Fencing

Fencing livestock out of streams is good for livestock health and good for local stream water quality. Fencing is not required for pastures, but using fencing as a BMP is an option to meet some of the regulatory requirements in Chapter 102.

Manure Management Planning

Manure management planning has been required since 1977. Currently, any farmer **land applying manure** must have a written manure management plan. PA DEP is currently revising the Manure Management Manual which is expected to be released in 2011. A copy of the Manual will be available online from DEP or contact your Conservation District. Concentrated Animal Operations (CAOs) and Concentrated Animal Feeding Operations (CAFOs) must follow applicable state and federal requirements for approved nutrient management plans. Non-CAO and non-CAFO operations must have a manure management plan. Consult your local conservation district or qualified private consultant for additional details.

It is required
to have a registered professional engineer certification for the construction of liquid and semi-solid manure storages.