Shenandoah County

OFFICE OF COMMUNITY DEVELOPMENT
Shenandoah County Government Center
600 N. Main Street, Suite 107
Woodstock, VA 22664
540-459-6185
www.shenandoahcountyva.us

POULTRY HOUSE ZONING PERMIT APPLICATION PACKET

Shenandoah County

Office of Community Development
600 North Main Street, Suite 107
Woodstock, VA 22664
www.shenandoahcountyva.us/zoning
jfadeley@shenandoahcountyva.us

Phone:
540-459-6194
Fax:
540-459-6193

POULTRY HOUSE APPLICATION CHECKLIST

_____ A zoning permit is required by Shenandoah County. Contact: Joyce Fadeley, Shenandoah County Zoning Administrator at 540-459-6194.

In accordance with the Shenandoah County Zoning Ordinance §165-84, the following items must be included when applying for a zoning permit: A site plan, nutrient management plan, erosion & sediment control plan, evidence of approval for an entrance by VDOT.

_____The site plan in the form of a plat shall be prepared and signed by a Virginia licensed surveyor and shall show the following: Existing and proposed buildings and structures on the subject parcel, the size of the parcel and size of proposed buildings and structures, proposed entrances and access roads, existing streams, rivers and sinkholes on the parcel.

_____Return the application and all supporting information to the Zoning Administrator. The poultry house zoning fee is $200.

Contact the following agencies for information pertaining to permitting requirements and forms:

_____A VPA General Permit for Poultry Waste Management is required by the Virginia Department of Environmental Quality (DEQ). Contact: Bob Peer at DEQ 540-574-7866. It is recommended that a litter storage site be designated in the Nutrient Management Plan.

_____Most poultry farms will need a Stormwater Management Permit. Contact: Gary Flory at DEQ 540-574-7866.

_____The construction of most poultry houses disturbs more than 10,000 square feet of soil and therefore will require an Erosion & Sediment Control Plan. Contact: Jason Smith, Shenandoah County Certified ESC Program Administrator 540-459-6327 for information about these plans.

_____For the installation of an Agriculture Well, please contact the Virginia Department of Health, at the local Shenandoah County office 540-459-3733.

_____A Nutrient Management Plan is required to be submitted to the County and DEQ. To get a plan written for a fee, private plan writers are available to write plans. Go to the following web address for a list of plan writers www.dcr.virginia.gov/soil_and_water/documents/nmdir.pdf or to get a plan written with no fee, contact Jay Marshall 540-351-1501 at DCR. For additional information contact Extension Agent, Bobby Clark at 540-459-6140.

_____An entrance permit is required by the Zoning Ordinance, Contact Rhonda Funkhouser at 540-984-5602, Virginia Department of Transportation, Edinburg Residency Office for information.

ZONING

APPLICATION FOR ZONING PERMIT – POULTRY HOUSE
Community Development, Zoning Office/Shenandoah County, Virginia
600 North Main Street, Suite 107, Woodstock, VA 22664/Phone 540-459-6194 Fax 540-459-6193

(1) Farm Name:_____

(2) Owner(s):_____

(3) Phone(s) Number(s):_____

(4) Mailing Address:_____

(5) Email Address:_____(6) Website Address_____

(7) Location of Site:_____

(8) Tax Map #:_____(9) Zoning: _____(10) Acreage:_____

(11) Setbacks from Property Lines: Front_____ R Side_____ L Side_____ Rear_____

(12) Setback from Closest Existing Residential Structure on adjoining property:_____

(12) Size of Proposed Buildiing(Square Feet):_____(13) Height:_____

(14) Number of Existing Dwellings on Parcel:_____(15) Number of other structures on parcel:_____

(12) Number of existing Poultry Houses on this tract:_____(13) Size(s):_____

(14) Number of new Poultry Houses:_____(15) Size(s):_____

I Certify the Above Information is True and Correct.

Applicant Signature:_____Phone#:_____

Print Name:_____Date:_____

[ ] Owner/Lessee
[ ] Contractor
[ ] Agent
[ ] Achitect/Engineer

Attachments:

[ ] Site Plan (in the form of a Plat) showing:
*Existing and proposed buildings/structures
*The size of the parcel/proposed buildings/structures
*Proposed entrances and access roads
*Existing streams, rivers and sinkholes

[ ] Nutrient Management Plan

[ ] E & S Plan

[ ] Farm Structure Affidavit

Department of Building Inspections
Shenandoah County, Virginia
600 North Main Street, Suite 107
Woodstock, VA 22664
540-459-6185

STATEMENT FOR USE OF FARM STRUCTURE

A farm building or structure is one that is not used for residential purposes, located on property where farming operations take place, and used primarily for any of the following uses or combinations thereof:

1. Storage, handling, production, display, sampling or sale of agricultural, horticultural, floricultural or silvicultural products produced on the farm;

2. Sheltering, raising, handling, processing or sale of agricultural animals, or agricultural animal products;

3. Business or office uses relating to the farm operations;

4. Use of farm machinery or equipment, or maintenance or storage of vehicles, machinery or equipment of the farm;

5. Storage or use of supplies and materials used on the far; or

6. Implementation of best management practices associated with farm operations.

The property on which the farm building or structure is located must be in Zoning District A-1 (Agricultural) or C-1 (Conservation) and approved by the Zoning Department.

I, _____ certify that the building or structure located on Tax

Map # _____ qualifies as a farm building or structure as defined above.

_____ _____
Signature Date

(Office use only)

Exempt by VUSBC ☐ Permit Required ☐ _____
Code Official

Article XI: Intensive Poultry and Hog Facilities

[Added 7-9-1991; amended 11-8-1994]

§ 165-80 Setback regulations.

A. Setbacks for intensive poultry facilities only. Intensive poultry facilities shall be constructed no closer than the following distances (setbacks) to the specified use or property line:

(1) For intensive poultry facilities located on a parcel included in an agricultural and forestal district created pursuant to §§ 15.2-4305 through 15.2-4311 of the Code of Virginia:

(a) Three hundred feet from any existing dwellings, schools, churches and other nonagricultural uses.

(b) Distance from property line as specified in § **165-11E(1)**, **(2)** and **(3)** when poultry facility is located in Conservation (C-1) Zoning District, or as specified in § **165-12E(1)**, **(2)** and **(3)** when poultry facility is located in Agriculture (A-1) Zoning District.

(2) For intensive poultry facilities located on a parcel not included in an agricultural and forestal district created pursuant to §§ 15.2-4305 through 15.2-4311of the Code of Virginia:

(a) Six hundred feet from any existing dwellings, schools, churches and other nonagricultural uses in a sparsely settled area.

(b) Nine hundred feet from any existing dwellings, schools, churches and other nonagricultural uses in a densely settled area.

(c) One hundred fifty feet from any property line, except a property line shared with an interstate highway.

(d) Distance from a property line shared with an interstate highway as specified in § **165-11E(1)**, **(2)** and **(3)** when poultry facility is located in the Conservation (C-1) Zoning District, or as specified in § **165-12E(1)**, **(2)** and **(3)** when poultry facility is located in the Agricultural (A-1) Zoning District.

(e) Setback specified in Subsection **A(2)(c)** may be reduced to less than 150 feet but greater than or equal to 75 feet by mutual consent of the grower and adjacent property owner. Consent shall be evidenced by written formal agreement referencing both parcels by deed book reference, signed by both parties, notarized and recorded in the office of the Clerk of the Circuit Court, with a copy provided to the Zoning Administrator at the time of recordation and prior to application for a zoning permit.

B. Setbacks for intensive hog facilities only. Intensive hog facilities shall be constructed no closer than the following distances (setbacks) to the specified use or property line:

(1) For intensive hog facilities on a parcel included in an agricultural and forestal district created pursuant to §§ 15.2-4305 through 15.2-4311 of the Code of Virginia: 300 feet from any property line.

(2) For intensive hog facilities on a parcel not included in an agricultural and forestal district created pursuant to §§ 15.2-4305 through 15.2-4311of the Code of Virginia:

(a) Six hundred feet from any existing dwellings, schools, churches and other nonagricultural uses in a sparsely settled area.

(b) Nine hundred feet from any existing dwellings, schools, churches or other nonagricultural uses in a densely settled area.

(c) Three hundred feet from any property line.

C. Additional setbacks for both intensive poultry and intensive hog facilities. Intensive poultry and/or hog facilities shall be constructed no closer than the following distances (setbacks) to the specified zone, boundary, feature or facility:

(1) Nine hundred feet from any residential (R-1, R-2 or R-3) and commercial (B-1 or B-2) zoning districts located outside an existing town or designated growth area.

(2) One thousand feet from any existing town boundaries and designated growth areas.

(3) One hundred feet from any streams, rivers, springs, sinkholes, water intakes and public wells; and 100 feet from any private wells on adjoining properties.

D. Application of setbacks to intensive poultry and intensive hog facilities. Setbacks presented in Subsections **A**, **B** and **C** are considered minimum setbacks. Where applicable setback minimums differ, the more stringent of the setbacks shall apply. All applicable setbacks shall be met concurrently.

E. Setbacks for residential dwellings. Any residential dwelling constructed on land that was once within an agricultural and forestal district created pursuant to §§ 15.2-4305 through 15.2-4311 of the Code of Virginia, but was withdrawn at the request of the owner before the period of the district lapsed, such dwelling shall be located no closer than 300 feet to any existing intensive poultry or hog facility in the agricultural and forestal district.

§ 165-81 Entrance location.

A permit for the proposed entrance to the intensive poultry or hog facility access road must be obtained from the Virginia Department of Transportation prior to application for a zoning permit.

§ 165-82 Poultry development plans (optional).

A grower or potential grower may file with the Zoning Administrator a development plan which indicates the number, size and location of poultry facilities planned for the subject parcel. When a poultry development plan has been approved and filed with the Zoning Administrator and during the period in which it remains in effect, the planned poultry facilities shall be obliged to meet setbacks only from those dwellings, schools, churches, other nonagricultural uses, zoning districts, town boundaries, designated growth areas, water intakes and wells existing at the time the poultry development plan is approved.

A. The poultry development plan shall be based on the requirements of this section and shall be accompanied by a plat prepared and signed by a land surveyor certified by the Commonwealth of Virginia verifying the accuracy of the distances shown in the poultry development plan.

B. The poultry development plan shall remain in force only so long as the poultry facilities proposed are constructed in accordance with the poultry development plan and are placed in service in a timely manner.

C. At least one poultry facility indicated in the poultry development plan must be constructed within 12 months of the date of plan approval, unless at least one poultry facility is already constructed on the subject parcel at the time the poultry development plan is filed.

D. In the event that a grower fails to build a poultry facility indicated in the poultry development plan within 12 months of obtaining zoning approval or if a poultry facility existed at the time the plan was approved and the grower fails to obtain zoning approval for any of the additional poultry facilities as indicated on the plan within a ten-year period, the Zoning Administrator shall review the poultry development plan. If the plan could still be implemented as is, or revised, to comply with the poultry regulations in effect at the time of review, then it may be renewed as revised for five additional years with five-year review periods continuing thereafter. If the plan does not comply with current poultry regulations, it shall be revoked and all future development of poultry facilities on the subject parcel shall conform to the ordinance in effect at the time of zoning permit application.

§ 165-83 Nutrient management plan.

A. After July 9, 1991, a permit for poultry operation shall not be issued until a nutrient management plan for the proposed poultry operation has been reviewed and accepted by the Zoning Administrator. Each poultry operation already in

of this chapter. Said site plan shall also show:

(1) The location of the following:

(a) Existing and proposed buildings and structures on the subject parcel.

(b) The size of the parcel and size of proposed buildings and structures.

(c) Proposed entrances and access roads.

(d) Existing streams, rivers and sinkholes on the parcel.

(2) The approval signature by an official representative of the Virginia Department of Transportation.

§ 165-85 Nonconformities.

A. No intensive poultry or hog facility permitted under this chapter shall continue in operation if, after meeting requirements for obtaining a zoning permit, land is divided from the parcel on which the poultry or hog facility is located, such that the poultry or hog facility or the parcel no longer conforms to the requirements of this chapter.

B. Intensive poultry and hog facilities in operation as of November 8, 1994, that do not meet setback requirements herein may be improved by additional poultry or hog facilities, provided that:

(1) The additional facilities shall be located no closer than existing facilities to existing dwellings, schools, churches, nonagricultural uses, residential (R-1, R-2 or R-3) and commercial (B-1 or B-2) zones, town boundaries and designated growth areas.

(2) The grower shall obtain the consent of those landowners or towns that would have a setback reduced by the proposed facility improvement. Consent shall be evidenced by written formal agreement referencing both parcels by deed book reference, signed by both parties, notarized and recorded in the office of the Clerk of the Circuit Court with a copy provided to the Zoning Administrator at the time of recordation and prior to application for a zoning permit.

C. Replacement or reconfiguration of poultry or hog facilities that do not meet the requirements of this chapter, when such facilities have been destroyed or damaged by fire, wind, snow or other phenomena out of the control of the landowner, may be permitted, provided that:

(1) The replacement facilities may be located no closer than the facilities being replaced to existing dwellings, schools, churches, nonagricultural uses, residential (R-1, R-2 or R-3) and commercial (B-1 or B-2) zones, town boundaries and designated growth areas.

(2) Any additions to or expansions of facilities that replace facilities originally in operation as of November 8, 1994, shall meet the requirements of Subsection **B** of this section.[1]

[1]: *Editor's Note: Original Section 517, Alternative discharging sewage treatment systems for single-family dwellings, was deleted in its entirety 11-10-1994.*

EROSION & SEDIMENT CONTROL

VIRGINIA EROSION & SEDIMENT CONTROL AGRICULTURAL/HORTICULTURAL EXEMPTIONS

In Virginia, disturbing 10,000 square feet or more of land requires an Erosion & Sediment (E&S) Control Plan approved by a local program authority or agent. The goals of the law governing this process are to reduce the amount of soil erosion from water or wind, and to prevent deposition of sediment in the Commonwealth's waters or on its lands.

As with any rule, there are exceptions:

Activities exempt from the normal procedures governing E&S are listed within the law under the definition for land-disturbing activity (Section 10.1-560, Code of Virginia). Several of these exemptions deal specifically with agricultural and horticultural activities, and are as follows:

- Tilling, planting, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations;
- Agricultural engineering operations including, but not limited to, the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation;
- Minor land-disturbing activities such as home gardens and individual home landscaping, repairs and maintenance work.

Questions & Answers:

Is land disturbance for constructing agricultural buildings exempt? No. The agricultural exemption does not apply to constructing farm buildings, such as barns, poultry houses, storage bins, etc. Rather, it deals with planting, tilling or harvesting, or engineering projects, such as ponds, dikes or levies (unless the disturbance was less than 10,000 square feet).

Are farm ponds covered by the exemptions in the E&S Code? Yes. Ponds which are constructed, maintained or operated primarily for agricultural purposes, as referenced by Section 10.1-604 of the Code of Virginia, are exempt as long as the pond is an appropriate soil- or water-conserving land use practice (such as for watering livestock or irrigation), it is an exempted engineering practice. However, a pond built purely for aesthetic purposes is not exempt.

Is land disturbance for the construction of farm roads exempt? Yes. Building necessary access roads, associated with land use resulting from tilling, planting, engineering operations, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations is exempt. If, however, a road was being constructed or enlarged for other purposes, such as building additional houses or structures, it would not be exempt (unless the disturbance was less than 10,000 square feet).

Is a structure built on land zoned agricultural exempt? No. If the land disturbance for the structure is more than 10,000 square feet, the activity in not exempt. Zoning makes no difference.

***PLEASE SHARE THIS WITH YOUR ENGINEER**

EROSION & SEDIMENT CONTROL PLAN & PERMIT APPLICATION

Shenandoah County

Office of Community Development

Shenandoah County Government Center

600 BN. Main Street, Suite 107

Woodstock, VA 22664

540-459-6185

Shenandoah County Erosion and Sediment Control Process

STEP 1 Submit a completed application package to the Planning & Zoning Office.
A complete application package consists of:

- THREE copies of the E&S Plan (Meeting all requirements of the State and local E&S Ordinance and the attached checklist)
- E & S Permit Application
- Appropriate Fee (per fee schedule shown below)
- Maintenance agreement on stormwater facilities

STEP 2 Racey Engineering will review plans and provide comments to the Planning and Zoning Office.

- Plans will be approved, approved with conditions or denied by the E & S Administrator.
- If plans require major revisions; a resubmittal fee is required and revised plans will be resubmitted to Racey Engineering for further review.
- If plans require only minor changes; Planning & Zoning Staff will review revised plans.

STEP 3 Once the E&S Plan is approved (including all revisions), the Registered Land Disturber (RLD) and Bonding Agreement shall be submitted. Bonding is determined as 110% of the total established cost of the project. A bond estimate may be submitted with the plan by the E&S plan designer. *(Referenced in the Shenandoah County E&S Ordinance §87-5.; Permits and Bonding).*

STEP 4 A preconstruction meeting will be scheduled by the Planning and Zoning Office. The meeting will be located at the land disturbance site with the engineer, contractor/developer and the Erosion & Sediment Control Inspector present.

STEP 5 A Land Disturbance Permit will be issued.

STEP 6 Inspections of the project site will take place bi-weekly or more frequently as deemed necessary.

STEP 7 Upon completion of the land disturbance activity a final inspection of the project site will take place.

STEP 8 Release of Bond, provided that:

- Infrastructure is complete and stabilized as shown on the approved E&S Plan.
- A certified as-built plan (if required) is submitted and approved by the county, *(Shenandoah County E&S Ordinance §87-5 (1)(2), Permits and Bonding).*

The fee schedule for Erosion & Sediment Control in Shenandoah County is as follows:

Commercial/Industrial Developments	$600 plus $100 per acre*
Subdivision Developments	$800 plus $100 per acre*
Other (Individual Prop Owner Disturbances)	$200 plus $100 per acre*
Agreement in Lieu of Plan	$30
Re-Submittal of Rejected Plan	$25 *(if the revisions needed are minor and can be reviewed by staff)*
	$75/hr. *(for County Engineers review)*

* (or any part thereof)

Jason Smith, Erosion & Sediment Control Program Administrator/Inspector

Shenandoah County

600 North Main Street, Suite 107
Woodstock, VA 22664 (540) 459-6190

EROSION & SEDIMENT CONTROL PERMIT APPLICATION

Project: _____

Location: _____

Tax Map Number: _____

Total Acreage: _____ Disturbed Acreage: _____

Type of Development: *(check all that apply)*

( ) Subdivision _____ *(no. of lots)*

( ) Commercial Building

( ) Soil Stockpile

( ) Road(s) _____ *(area)*

( ) Other *(specify)* _____

1. Owner or Developer: _____ Telephone: ( ) _____
   Mailing Address: _____
2. Excavating Contractor: _____ Telephone: ( ) _____
   Mailing Address: _____
3. Job Superintendent: _____ Telephone: ( ) _____
   Mailing Address: _____
4. Engineer: _____ Telephone: ( ) _____
   Mailing Address: _____
5. Responsible Land Disturber: _____ Telephone: ( ) _____
   Mailing Address: _____

I certify the above information is true and correct, that all erosion and sediment controls shall be installed before any land disturbance, and that we will conform to applicable laws.

Signature *(property owner)* _____ Date _____

Authorized Applicant _____ Date _____

OFFICE USE ONLY

Tax Map Designation _____ Permit No. _____

Date Plan Approved _____ Date Issued _____

Date Pre-Construction Conference _____ Fee _____

Bond Amount _____ Receipt No. _____

Approved _____ (E & S Administrator)

SHENANDOAH COUNTY CHECKLIST
Erosion & Sediment Control Plans

Project:_____County:_____

Narrative:

_____Project Description: Describes the nature and purpose of the land disturbing activity.

- Time of year the project will start and conclude.
- Estimated time for completion of this project.
- Total impervious area created by development.
- Ultimate developed conditions for this site are discussed.

_____Existing Site Conditions: Describes existing topography, vegetation and drainage.

- Indicates the percentages of slope(s) on the site.
- Vegetation that can be used for erosion control, or areas to be left undisturbed.
- Discusses the marking of all areas to be preserved.
- Describes the drainage areas in pre and post development giving acreage.
- Discusses existing drainage and erosion problems and how they will be addressed.
- Describes the orientation of all slopes existing and proposed (i.e. north or south facing).
- Discusses how existing conditions can be utilized to reduce erosion and how E&S controls will be designed to facilitate this site.
- Includes photographs of site.

_____Adjacent Areas: Describes all neighboring areas such as streams, lakes, residential areas, roads, etc., that may be effected by this development.

- Potential for off-site damage is discussed.
- All environmentally sensitive areas are discussed.
- Private and public lands adjacent to site are discussed addressing all possible problems to consider for traffic, dust, increased run-off, etc.
- Discusses all perimeter controls.

_____Off-site Areas : Describes all off-site areas such as borrow sites, waste or surplus sites.

- All off-site areas have an approved plan to supplement the overall plan.
- Proof of permitting provided for all off-site areas under a separate permit.
- Specifies location of all off-site areas.

_____Soils: Briefly describes the soils on the site providing soil name, mapping unit, erodibility factor, permeability, depth, texture and soil structure.

- Indicates references for soils information.
- Copy of Soils Map provided.
- Indicates the site plan page where soils are delineated.

_____**Critical Areas: Describes all areas on site that have serious erosion problems (i.e. steep slopes, channels, wet weather/ underground springs etc.).**

- Discusses all areas of the project, which may become critical during the project. For example, some areas of the site may have long or steep slopes during a certain phase of the grading.
- Indicates areas to be left alone until they can be graded and stabilized in favorable conditions.
- Discuses precautions to communicate limits of these areas to contractors and equipment operators.

_____**Erosion and Sediment Control Measures: Describes the methods that will be used to control erosion and sedimentation on the site.**

- Provides specification numbers for all control measures and indicates their locations.
- Discusses why these particular practices were selected.
- Discusses the sequence of installation; including maintenance and removal of each control.
- Indicates the type of seed for temporary seeding.

_____**Permanent Stabilization: Describes how the site will be stabilized after construction.**

- Provides adequate measures for final stabilization.
- Provides correct seeding times , consistent with the construction sequence.
- Includes any soil testing requirements.
- Includes seeding, fertilizer and liming specifications.
- Proposes an appropriate permanent vegetative cover.
- Discusses all areas that require stabilization by other means (non -vegetative stabilization ,gravel, paving, etc.)

_____**Stormwater Runoff Considerations: Discusses whether the development will cause an increase in peak runoff rates. Describes any possible increase in runoff which may cause flooding or channel degradation downstream. Includes strategies to control stormwater runoff.**

- Discusses protection of downstream properties and waterways.
- Discusses how increased runoff will be managed during construction.
- Discusses permanent structures and provides site plan page references for these items.

_____**Calculations: Provides detailed calculations for the design of temporary sediment basins, permanent detention basins, diversions, channels, ,etc. Includes calculations for pre and post development runoff.**

- Provides calculation worksheets showing pre-development and post-development runoff.
- Clearly presents and organizes calculation methods.
- Calculations support the design in regard to adequate protection of downstream properties and waterways.

_____**Maintenance: Provides a schedule for maintenance of permanent control measures.**

- Indicates responsible party for maintenance during construction and after construction
- Provides a schedule for inspections.
- Lists maintenance items to check and perform as well as precautions for large storms.

Erosion Control Site Plan:

_____**Vicinity Map: Locates the site in relation to the surrounding area, indicating roads and local landmarks which identify the site.**

- Provides a vicinity location map such as a reproduction from a topo map, road map etc.

_____**Indicates north:**

- Provides directional north indicator arrow on each sheet.

_____**Limits of Clearing: Areas that are to be cleared and graded.**

- Areas to be disturbed (limits of clearing and grading) are clearly marked on site plan.
- Notation made as to how the site will be marked in the field (i.e, staking and flagging).
- All areas **not** to be disturbed are clearly marked . Notation made how these areas will be identified in the field.

_____**Existing Contours: Existing contours of the site before development.**

- Existing contours shown as broken (dashed) lines at intervals not exceeding 5 feet unless otherwise approved.
- All pre-development drainage areas are clearly defined on plan.
- All potentially critical areas such as slopes are indicated.
- All cut and fill areas are clearly indicated

_____**Final Contours: All changes to the existing contours, including final drainage patterns**

- All final grades and drainage areas are clearly indicated
- Any pre-development drainage areas which has increased is clearly indicated on plan
- Shows any final grades which create critical areas for stabilization.
- Provides specifications for vegetative cover for all slopes at final grade.

_____**Existing Vegetation: Existing tree lines, grassed areas or unique vegetation.**

- Shows all tree lines and existing vegetation.

_____**Soils: Boundaries for all different soil groups**

- Shows the mapping unit boundaries for all soil types.
- Provides soil classification information, shows borings if any.

_____**Existing Drainage Patterns: The dividing lines and the direction of flow for all existing drainage areas.**

- All existing drainage areas must be indicated by acreage and show the direction of flow.
- Plans shows all basins, traps and/or other structures necessary to erosion control
- Designs for all proposed structures are consistent with the requirements in the Virginia Erosion and Sediment Control Handbook.
- Site plan indicates diversions for offsite drainage.

_____**Critical Erosion Areas: Highlights areas that have a serious erosion problem or the potential for a serious problem.**

- All critical, environmentally sensitive or prohibited areas are indicated on the plan .Notations state the reason for concerns.
- Special consideration given to stream crossings, other permitting requirements, soil stock piles, trash and debris removal, fuel storage etc.

_____**Site Development: Shows all improvements such as buildings, parking lots, access roads, and utility construction.**

- Site plan shows all improvements intended such as buildings, roads, temporary access roads, right-of-ways and temporary and permanent easements.
- All utility improvements proposed on-site and off-site are shown.

_____**Location of Practices: The locations for all erosion and sediment controls and stormwater management practices proposed for site**

- All practices including vegetation are clearly labeled on site plans.
- Site plan contains a legend denoting symbols, line uses and other special characters.

_____**Off-site Areas: Identifies all off-site land-disturbing activities such as borrow areas and waste sites. All necessary control devices must be depicted on plan or on a separate plan.**

- Provides a separate plan for proposed off-site borrow or disposal areas.
- Provides for adequate measure to stabilize of-site areas.
- The plan identifies the responsible party for off-site activities.

_____**Detailed Drawings: all proposed structural practices shall be referenced from the Virginia Erosion and Sediment Control Handbook or additional details provided for all structures that are referenced in the handbook.**

- Details properly designed and clearly dimensioned to reflect the ability to be built in the field.
- Proposed structures of alternative design have adequate details for constructing.
- All drawings, elevations and cross section details indicate design scale.
- An outlet protection schedule is provided on the plans.
- The sizes for all proposed pipe, flume and slope drains provided on the plans.
- The plan details include VESCH specification numbers.
- Details of all practices being used provided on the plans.

_____**Maintenance, A schedule of regular inspections and repair of erosion and sediment structures should be set forth.**

- The plan indicates who is responsible for maintenance and repair of al E & S measures on the project.
- The plan indicates who the preliminary contact for notification of problems and/ or emergencies will be.
- The plan provides a maintenance schedule and specifications for the proper clean out and maintenance of all major structures such as basins, traps, silt fence etc.
- The plan requires monitoring reports to be submitted from the RLD.

Date Received:_____

Comments

_____

_____

_____

_____

Reviewer_____ **Date**_____

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

DEQ VPA GENERAL PERMIT FOR POULTRY WASTE MANAGEMENT

VIRGINIA DEQ REGISTRATION STATEMENT FOR VPA GENERAL PERMIT FOR POULTRY WASTE MANAGEMENT FOR POULTRY GROWERS

For DEQ Use Only:
Accepted: Yes ☐ No ☐
Initials: _____
Date: _____

PLEASE TYPE OR PRINT ALL INFORMATION ALL PARTS OF THIS FORM MUST BE COMPLETED

1. Poultry Grower Information

Name: _____

Mailing Address: _____
Street

_____ City _____ State _____ Zip

_____ Business Phone _____ Mobile Phone _____ Home Phone

E-Mail Address: _____

The best day of the week & time to contact the poultry grower: _____ Date _____ Time ☐ AM ☐ PM

2. Operator or Contact Person Information

Name: _____

_____ Business Phone _____ Mobile Phone _____ Home Phone

E-Mail Address: _____

The best day of the week & time to contact the operator or contact person: _____ Date _____ Time ☐ AM ☐ PM

3. Farm or Facility Information

Farm Name: _____

Location: _____

Is this a contract operation? YES ___ NO ___ Poultry Integrator: (if applicable) _____

Does the facility have an existing VPA permit? YES ___ NO ___ Permit Number: _____

Are new poultry growing houses under construction or planned for construction? YES ___ NO ___

Types of poultry and the maximum numbers of each type that will be grown at the facility at any one time:

Poultry Type	Maximum Number

Identify the method of dead bird disposal: _____

4. **Attachments:** the following items must accompany this completed Registration Statement: (see instructions)
   a. a copy of the nutrient management plan approved by the Department of Conservation and Recreation (DCR).
   b. a copy of the DCR nutrient management plan approval letter which also certifies that the plan was developed by a certified nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia.

5. **Certification:** "I certify that for any confined poultry feeding operation that proposes construction of new poultry growing houses, notice of the registration statement has been given to all owners or residents of property that adjoins the property on which the confined poultry feeding operation will be located. This notice included the types and numbers of poultry which will be grown at the facility and the address and phone number of the appropriate Department of Environmental Quality regional office to which comments relevant to the permit may be submitted.

I certify under penalty of law that all the requirements of the Board for the general permit are being met and that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

_____ Signature _____ Printed Name _____ Date

REGISTRATION STATEMENT INSTRUCTIONS

VPA GENERAL PERMIT FOR POULTRY WASTE MANAGEMENT FOR POULTRY GROWERS

General

A Registration Statement must be submitted when a confined poultry feeding operation makes application to the Department of Environmental Quality for coverage under the VPA General Permit for Poultry Waste Management. Contact the nearest DEQ regional office if you have questions about filing this form.

Section 1 Poultry Grower Information

Give the name, mailing address, telephone numbers and e-mail address (if available) of the person to whom this permit will be issued. Please provide the best day of the week and time for DEQ to make contact with the grower during regular working hours.

Section 2 Operator or Contact Person Information

If there is a person other than the grower who manages daily activities at the operation being permitted or who should be contacted for site visits, give that person's name, phone numbers and e-mail address (if available). If these are the same as the grower information, write "SAME AS ABOVE". Please provide the best day of the week and time for DEQ to make contact with the operator or contact person during regular working hours.

Section 3 Farm or Facility Information

Give the name of the farm. Give the location for the confined poultry feeding operation other than the grower's mailing address (e.g. Rt. 653, 1 mile west of Rt. 702). Indicate whether the facility operates under a contract with a poultry integrator. If applicable, give the name of the integrator. List the number of any expiring or currently effective permits issued to the poultry feeding operation under the VPA permit program.

New Construction
Indicate if you are building or plan to build new poultry growing houses at this operation. Note that growers who are building new growing houses must notify all owners or occupants of property bordering the operation, including land where litter will be spread, that they are applying for coverage under the general permit. This notice must include the types and maximum number of poultry on the operation and the address and phone number of the DEQ regional office to which they can send comments relative to the operation's ability to comply with the permit. DEQ must allow 30 days from the date you file the registration statement for comments to be submitted and considered. Failure to provide this notice to neighboring property owners/occupants will invalidate your coverage under the general permit if you are going to build new growing houses. The notice is not required if new houses are not going to be constructed.

This permit has the following restriction on the siting of new growing houses: "New, expanded or replacement poultry growing houses that are constructed after December 1, 2000 shall not be located within a 100-year floodplain unless they are part of an existing, ongoing confined poultry feeding operation and are constructed so that the poultry and poultry litter are housed above the 100-year flood elevation or otherwise protected from floodwaters through construction of berms or similar best management flood control structures."

Animal Information
Indicate the type of poultry (i.e. layers, broilers, pullets, turkeys, etc.) grown at this operation and the maximum numbers of each type that the operation will have at any one time.

Method of Dead Bird Disposal
Indicate how daily mortalities are disposed of. Note that while composting, incineration, rendering and burial are allowable methods of disposal under the Code of Virginia, operations that use burial for disposal of daily mortalities are not allowed coverage under the general permit. They will have to apply for an individual VPA permit. Contact DEQ for further information if you use burial for disposal of daily mortalities. Burial of entire flocks under §3.2-6002 of the Code of Virginia and burial of partial flocks under the Solid Waste Management Act (§ 10.1-1400) are allowed under the general permit.

Section 4 Attachments

a. Nutrient Management Plan (NMP)
State law requires that every poultry feeding operation seeking coverage under the VPA general permit have a Nutrient Management Plan. A copy of the operation's Nutrient Management Plan must be attached to the Registration Statement; however, if a current NMP is on file at the DEQ regional office then it is not necessary to attach the NMP.

b. NMP Approval Letter
A copy of the letter from the Virginia Department of Conservation and Recreation approving the operation's NMP and certifying that the NMP was developed by a certified nutrient management planner in accordance with §10.1-104.2 of the Code of Virginia must be attached to the Registration Statement. However, if a current NMP approval letter is on file at the DEQ regional office then it is not necessary to attach the NMP approval letter.

Section 5 Certification

The Certification must bear an original signature in ink, photocopies are not acceptable. State statutes provide for severe penalties for submitting false information on this Registration Statement. State regulations require this Registration Statement to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.

Sample Neighbor Notification Letter

DATE

Dear Neighbor:

I am applying to the Department of Environmental Quality for coverage under their Poultry Waste Management General Permit. I also am constructing or plan to construct new poultry growing houses at my farm. DEQ requires that I notify all owners or residents of property adjoining my operation that I am taking these actions. My operation will have a maximum of [**number and type of birds**] at any one time. Land application of poultry litter by my operation will be strictly regulated by the DEQ permit and a nutrient management plan approved by the Department of Conservation and Recreation.

Under the DEQ regulations, you have 30 days to send them comments regarding my request for coverage under their permit. After that date, DEQ will make its decision. If you want to comment, you must send your comments within 30 days, in writing, to the following address:

DEQ Regional Office address

If you have any questions about this notice, you can call the local DEQ office at (XXX)XXX-XXXX or feel free to call me at XXX-XXXX.

Sincerely,

VIRGINIA DEPARTMENT OF HEALTH

Protecting You and Your Environment

VDH

WELL WATER SUPPLY

Commonwealth of Virginia

Application for: ☐Sewage System ☐Water Supply

VDH Use only
Health Department ID# _____
Due Date _____

Owner _____ Phone _____

Mailing Address _____ Phone _____

_____ Fax _____

Agent _____ Phone _____

Mailing Address _____ Phone _____

_____ Fax _____

Site Address _____

_____ Email _____

Directions to Property: _____

Subdivision _____ Section _____ Block _____ Lot _____

Tax Map _____ Other Property Identification _____ Dimension/Acreage of Property _____

Sewage System

Type of Approval: Applicants for new construction are advised to apply for a certification letter to determine if land is suitable for a sewage system and to apply for a construction permit (valid for 18 months) **only when ready to build**.

☐Certification Letter ☐ Construction Permit ☐ Voluntary Upgrade ☐ Repair Permit

Proposed Use:

Single Family Home (**Number of Bedrooms** ____) Multi-Family Dwelling (**Total Number of Bedrooms** ____)

Other (describe) _____

Basement?☐Yes☐No Walk-out Basement?☐Yes☐No Fixtures in Basement☐Yes☐No

Conditional permit desired?☐Yes☐No If yes, which conditions do you want?

☐Reduced water flow ☐Limited Occupancy ☐Intermittent or seasonal use ☐ Temporary use not to exceed 1 year

Do you wish to apply for a betterment loan eligibility letter?☐Yes☐No *There is a $50 fee for determination of eligibility.

Water Supply

Will the water supply be☐Public or☐Private? Is the water supply☐Existing or☐Proposed?

If proposed, is this a replacement well?☐Yes ☐No If yes, will the old well be abandoned? ☐Yes ☐No

Will any buildings within 50' of the proposed well be termite treated? ☐Yes ☐No

All Applicants

Is this a private sector OSE/PE application? ☐Yes ☐No If yes, is the OSE/PE package attached? ☐Yes ☐No

Is this property indeed to serve as your (owners) principal place of residence? ☐Yes ☐No

In order for VDH to process your application for a sewage system you must attached a plat of the property and a site sketch. For water supplies, a plat of the property is recommended and a site sketch is required. The site sketch should show your property lines, actual and/or proposed buildings and the desired location of your well and/or sewage system. When the site evaluation is conducted the property lines, building location and the proposed well and sewage sites must be clearly marked and the property sufficiently visible to see the topography.

I give permission to the Virginia Department of Health to enter onto the property described during normal business hours for the purpose of processing this application and to perform quality assurance checks of evaluations and designs certified by a private sector Onsite Soil Evaluator or Professional Engineer as necessary until the sewage disposal system and/or private water supply has been constructed and approved.

_____ _____

Signature of Owner/ Agent Date

This form contains personal information subject to disclosure under the Freedom of Information Act. Revised 12/1/2014

Well Specifications

VDH Use Only
HDIN:

Applicant Information

Name: _____ Address: _____

Phone: _____ _____

Location Information

Tax Map/GPIN #: _____ Property Address: _____

Subdivision: _____ Section: _____ Block: _____ Lot: _____

Directions: _____

General Information

Well Purpose (select all that apply): ☐ Domestic Drinking Water ☐ Agricultural

☐ Irrigation ☐ Industrial/Commercial ☐ Geothermal

Well Class: _____ Minimum Casing Depth: _____ ft.

Estimated Water Usage: _____ Minimum Grout Depth: _____ ft.

Horizontal Setbacks

Distance from Building Sewer: _____ ft. Distance from Pretreatment Unit(s): _____ ft.

Distance from Conveyance System: _____ ft. Distance from Absorption Area: _____ ft.

Distance from Property Line: _____ ft. Distance from foundations: _____ ft.

Distance from other source(s) of contamination: _____ ft.

List other source(s): _____

Note: _____

_____

_____

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Virginia Department of Transportation

ALL OTHER APPLICATIONS CAN BE OBTAINED DIRECTLY FROM THE AGENCY

Virginia Cooperative Extension

PUBLICATION 424-037

Composting Dead Poultry

Eldridge R. Collins, Jr., Extension Agricultural Engineer

Introduction

An acceptable system of disposal for dead birds is essential to any well run poultry farm operation. Moreover, Virginia law requires that poultry producers have an approved means for disposing of dead birds. There are generally two categories of disposal problems: (1) Normal mortality, which is typically about 0.1 percent per day, but fluctuations up to 0.25 percent per day are not uncommon, and (2) Whole flock disposal.

Research at the University of Maryland, and field application in other poultry states, have shown that normal mortality can be handled efficiently and safely by composting dead poultry. Composting is a natural process in which beneficial organisms--bacteria and fungi--reduce and transform organic wastes into a useful end product--compost--which can be used as a fertilizer and soil amendment. Although simple in concept and design, dead poultry composters require attention to detail and careful management. Effective July 1, 1992 properly constructed and properly managed dead bird composters are an acceptable method of handling normal flock mortality in Virginia.

Composting is not recommended for whole flock disposal cases. Such cases require special permission and supervision from the Virginia State Veterinarian's Office.

Principles of Composting

Composting is a controlled biological decomposition process that converts organic matter to a stable, humus-like product. The process depends upon microorganisms which utilize decomposable organic waste both as an energy and food source. The composting process converts a material with potential odor and other nuisance problems into a stabilized product that is reasonably odor and pathogen free, and which is a poor breeding substrate for flies and other insects. In addition, the volume and weight of the composted product is less than that of the original raw waste because composting converts much of the carbonaceous material to gaseous carbon dioxide. Heat generated during the process destroys pathogenic organisms and weed seeds that might be present in the raw waste, and helps to drive off moisture. In turn, because of the reduced volume and weight, hauling and spreading costs are less than that required for the raw wastes. The "controlled" nature of composting distinguishes it from other natural processes such as rotting and putrefaction.

Chemical and physical properties of the raw wastes affect the rate of composting. Particle size and surface area of the waste material influence the type of microorganisms involved and the degree of biological activity in the composting process. For this reason, smaller carcasses, or those which have been slit or ground, usually compost more easily than large, whole carcasses.

Moisture content will largely determine whether the process will be "anaerobic" (without oxygen) or "aerobic" (with oxygen). For dead bird disposal, aerobic systems are preferred because they are faster and produce fewer odors and other objectionable features. Ideal moisture content for aerobic composting is about 60 percent. At a 70 percent moisture content, the process begins to go anaerobic. A moisture content of 50 percent or below will slow down the composting process. High moisture level can be controlled when working with a wet waste by using a little extra straw, litter, or other bulking agent. Low moisture contents are increased by sprinkling the pile with a measured amount of water.

The carbon:nitrogen ratio (C:N) also affects the rate of biological activity. Carbon:nitrogen ratios of 15:1 to 35:1 are acceptable. If the C:N ratio is less than 25:1, organisms cannot utilize all of the nitrogen available, and nitrogen is then lost as ammonia. This, in turn,

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VIRGINIA STATE UNIVERSITY

results in an unpleasant odor, possible air pollution, and loss of potential fertilizer value. When the C:N ratio exceeds 30:1, the rate of composting decreases. Inorganic nitrogen such as urea or ammonium nitrate can be mixed with the carbonaceous material to lower the C:N ratio to 30:1, or below.

Temperature is a good indicator of biological activity in the compost pile, and is easily measured. Moisture content, oxygen availability, and microbial activity all influence temperature. Two or three days after wastes are mixed and placed in piles, thermophilic microbes should begin to dominate. These organisms prefer a temperature of 100 degrees F to 150 degrees F. As conditions in the pile change, for example, due to an unfavorable moisture content, change in the C:N ratio, or decreasing oxygen supply, the temperature may drop and the microbial population will shift back to a regime of lower temperature microbes.

As long as the pile temperature is increasing, it is functioning well and should be left alone. As the temperature peaks, and then begins to decrease, the pile should be turned to incorporate oxygen into the compost. After turning, the pile should respond to the mixing and incorporation of oxygen, and temperature should again cycle upwards. Ideally, the turning process should be continued until the reheating response does not occur again, indicating that the compost material is biologically stable.

Poultry Composter Design

Composter size is based on farm capacity, overall bird market weight at the end of a production cycle, and projected normal mortality. Disposal requirements are estimated using the following equation:

Peak disposal requirement, lbs. = Farm capacity (number) x Market Wt. (lbs) x M where M = [Percent average daily mortality / 100]

For most Virginia conditions, the average M = 0.0012.

The required primary composting capacity, number of bins, and their configuration are determined by the following rules:

1. Primary (first stage) composting capacity (cubic feet) will be the same number as the disposal requirement (pounds per day) although the units of measure will be different.
2. Provide one cubic foot of secondary (second stage) bin capacity for each pound of disposal requirement.
3. Height of primary and secondary bins should be 5 feet.
4. Width of primary and secondary bins should conform to width of manure handling equipment, but should not exceed 8 feet.
5. Horizontal depth of primary bins should not exceed 6 feet.
6. Generally, many smaller primary bins work more effectively than fewer large bins.
7. Always provide a minimum of two primary bins.
8. Secondary capacity may be as adjoining companions to the primary bins, or more commonly, may be a larger common stacking area. Often growers use a portion of their litter storage structure for secondary composting.

Example: What capacity of first-stage composter bins is required for a grower with a 100,000-head capacity farm with a bird market weight of 4.2 pounds? How many primary bins are required (to match a 5-foot wide bucket loader)? Remember, bins will need to be a little wider than the loader bucket. How much secondary bin capacity will be required?

Peak disposal requirement, lbs. = Primary capacity, cubic feet = Farm capacity x Market Wt. x 0.0012
= 100,000 x 4.2 x 0.0012

Primary capacity = 504 cubic feet

Primary bin size = 5 ft. high x 6 ft. wide x 6 ft. deep (6 ft. width selected to accommodate the 5 ft. bucket width) = 180 cubic feet

Number of Primary bins = 504 cubic feet / 180 cubic feet = 2.8, so use 3 bins

Secondary bin capacity: Should equal the daily primary disposal requirement. Width of bin should accommodate equipment on this farm, a 6 ft. width should be adequate. Vertical depth should be no more than 5 feet.

Secondary bin length (min.) = 504 / (5 x 6) = 16.8 ft.

Total secondary bin size (min.) = 16.8 ft. x 6 ft. x 5 ft. = 504 ft.3

Since the secondary bin may be located behind the three primary bins (similar to Figure 1), total secondary bin length may be 18 ft.

Key Construction Features

Composter design can vary considerably and still work well. However, experience indicates that certain features are common to all good composters.

Roof: Some materials are composted outside. However, this is not recommended for dead bird composters. A roof ensures all-weather operation and helps control rain, snow, runoff, and percolation, which can be major concerns.

Floor: A concrete floor is recommended to assure all-weather operation, and to secure the composter against rodents, dogs, and other nuisances. An impervious floor also will help dispel questions about contamination of the groundwater and other surrounding areas. An optional concrete apron, sloped away from the primary bins, is recommended. This provides an all-weather surface for equipment and operation.

Building Materials: Specify preservative pressure-treated lumber or other rot-resistant materials which resist the biological activity of composting. Use hot-dipped galvanized nails which resist rusting.

Access to primary bins: A method is needed to enclose and confine the compost mixture, but allow access with a bucket loader for efficient handling with farm equipment. One technique that works well is to construct channels on the sides of front bin posts using angle iron or wood cleats. Treated boards can then be slipped into the channels to form a front wall, or "gate," as layers are stacked in the bin. Conversely, the boards can be removed after the composting is completed to give access to the bin with a bucket loader.

Several different approaches can be taken in designing good dead bird composters. Figure 1, Figure 2, and Figure 3 show practical field applications.

Composter Operation

Experience in Maryland, Virginia, and elsewhere has shown that a simple mixture of poultry litter or cake; straw, hay, or peanut hulls; and dead birds will allow the naturally occurring microbes to begin to work and produce an inoffensive and useful compost. It will be important to assure proper moisture levels to promote growth of aerobic bacteria and fungi.

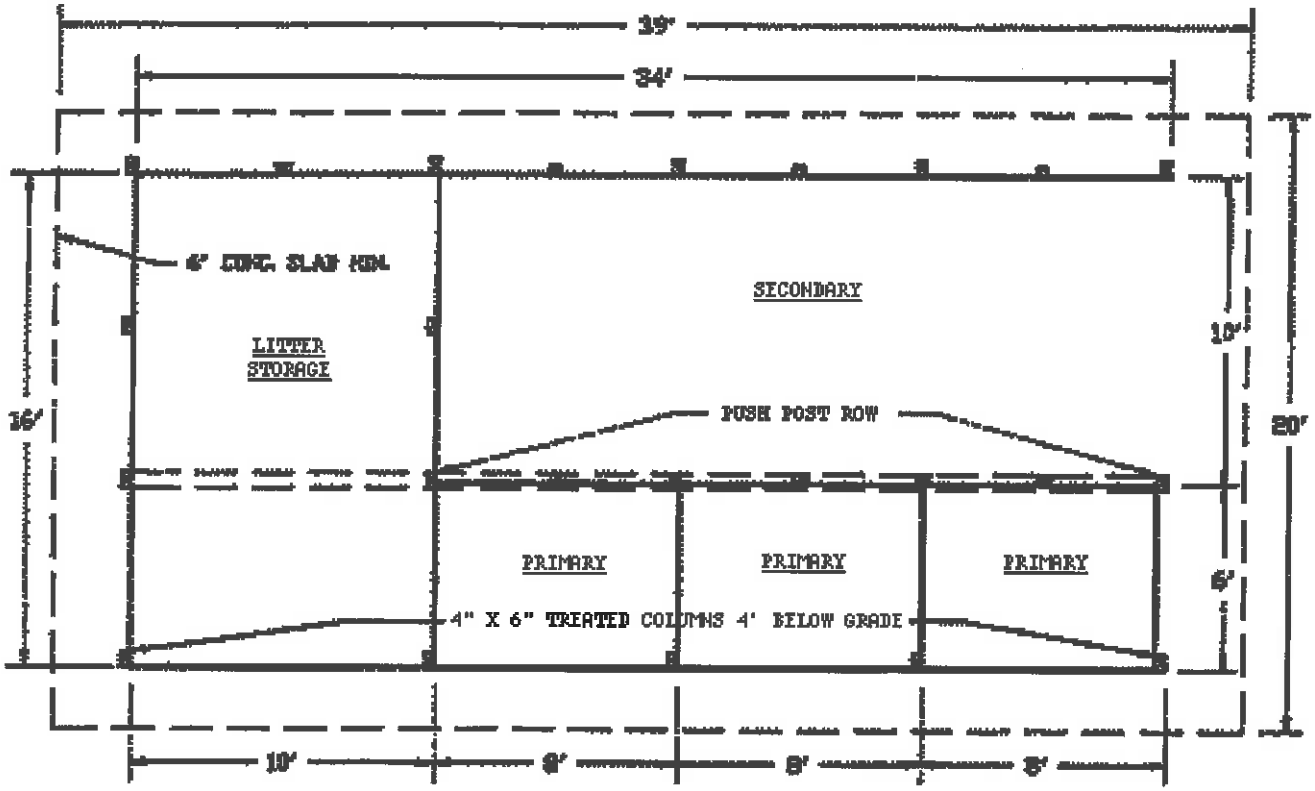

Figure 1: Typical layout which combines litter storage with primary and secondary treatment bins.

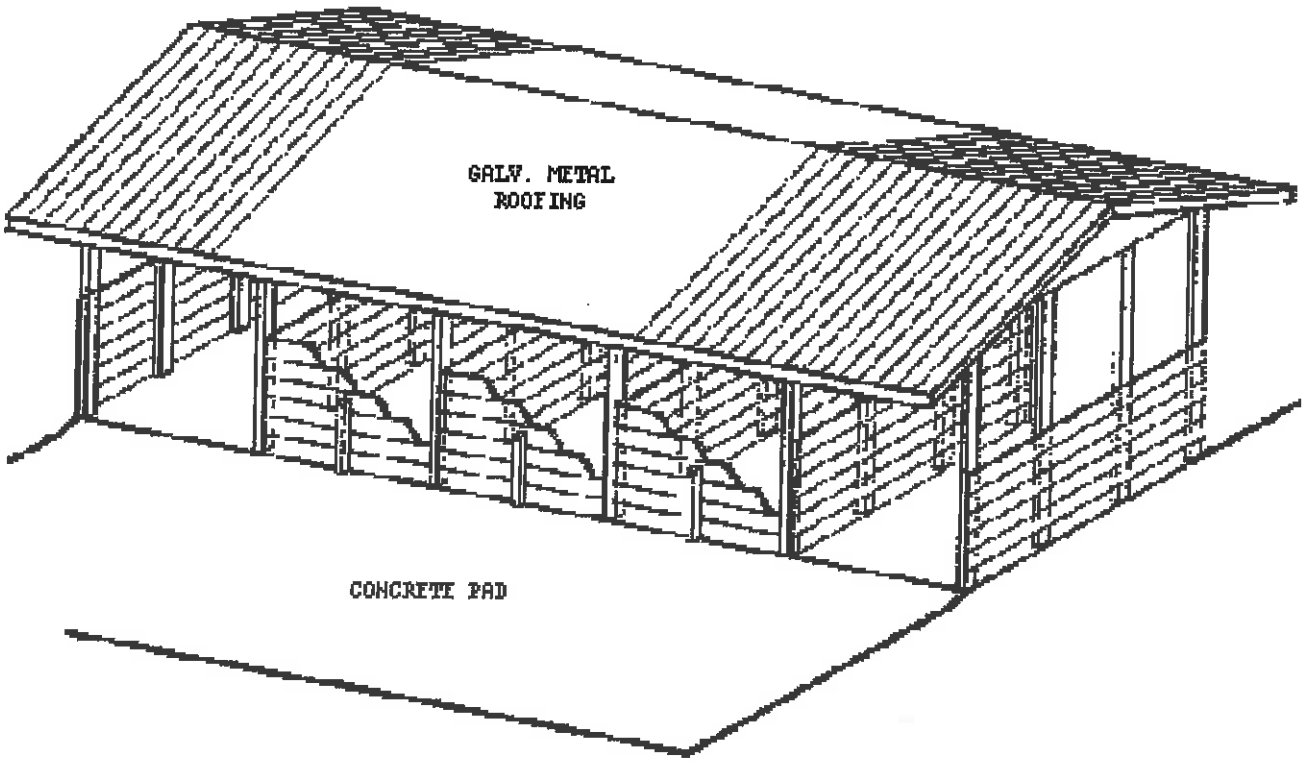

Figure 2: Free-standing, two-stage dead bird composter.

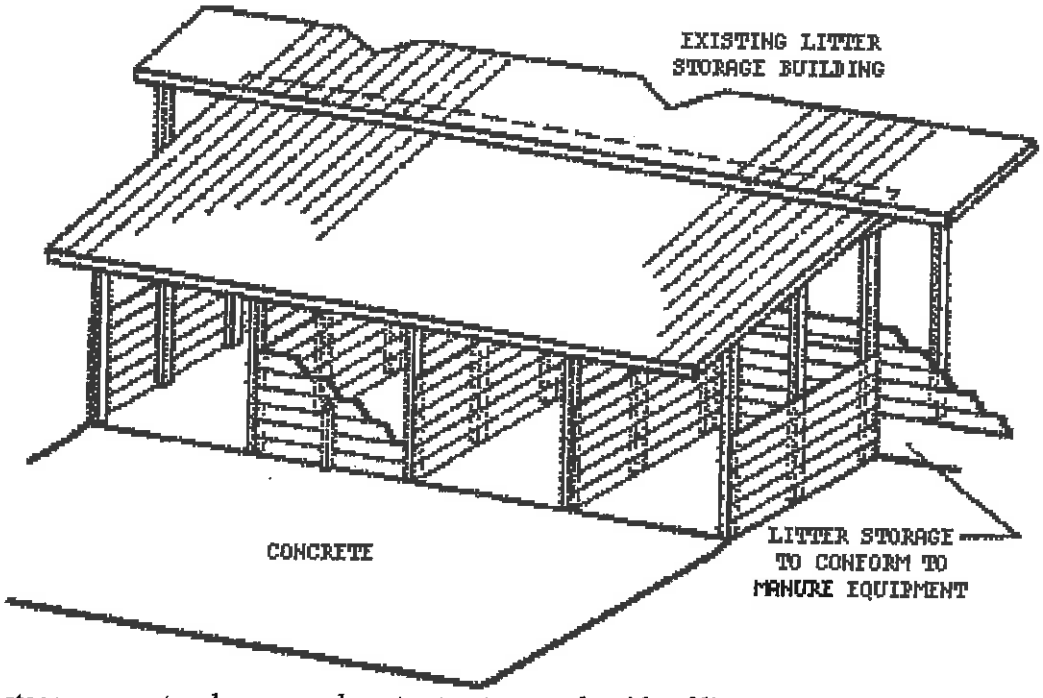

Figure 3: Two-stage composter shown as a lean-to structure on the side of litter storage building.

A recommended "recipe for composting dead birds is shown in Table 1. The first few days of operating a new composter will take more time than after routine procedure is learned. Normal daily operation of a bird composterdesigned to handle 1050 pounds per day is about 20 minutes. This includes loading primary bins, monitoring temperatures, and moving compost.

Determine the weight of a day's supply of dead birds. Ingredients can be weighed out according to the recipe, weighing them in buckets on scales at first, then using a loader once the weight of a full loader bucket is determined for each ingredient. Depending upon needs - mortality and bird weight - you may add partial layers, full layers, or entirely fill primary compost bins. Ideally, composter bins should be sized so that an average day's mortality will equal one layer of dead birds. Each successive day the birds should be layered in the bin (Figure 4) with other elements added: straw, birds, litter. Water may or may not be necessary. Use water sparingly at first since, H piles are too wet, oxygen will be excluded and anaerobic conditions will develop, resulting in heating failure and high odor production. This condition can be remedied by turning the piles while adding additional dry litter.

Within two to four days of loading, internal bin temperature should increase to 135 to 150 degrees F. A 36 inch probe-type thermometer should be used to daily monitor temperature in bins or piles. As dead birds accumulate, successive primary bins should be loaded. When the last available bin is filled, the first should have undergone 7 to 10 days of composting and reduction, and will be ready for secondary treatment. As a

Table 1. Typical recipe for composting dead poultry

Ingredient	Parts by Weight
Caked litter or manure	1.5 to 3
Dead birds	1
Straw*	0.1
Water (added sparingly)**	0 to 0.5

* Other carbon sources may also be used such as peanut hulls, sawdust, or shredded cellulose paper. However, straw has been shown to be an excellent material for this purpose.

** The requirement for water will vary depending on moisture content of straw, litter, and other factors. Too little moisture or too much moisture may adversely affect composting. The mixture should be damp, in the range of 40-60 percent moisture. If moisture is required, it should be added to each element during the layering process while building the compost stack.

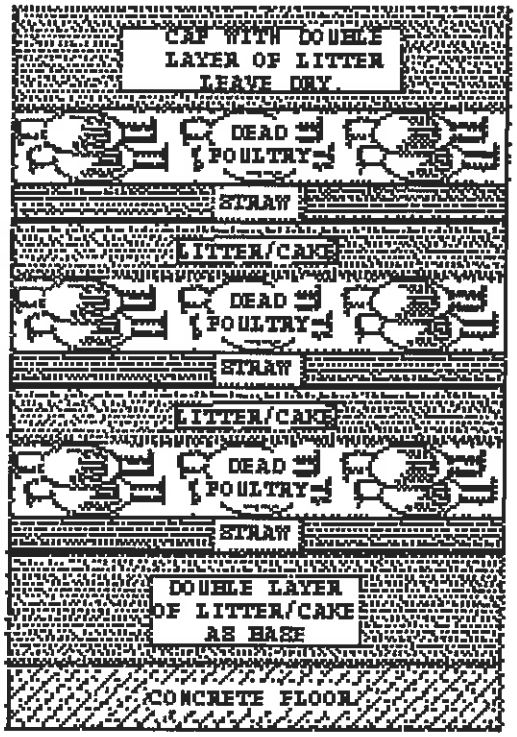

Figure 4: Layering arrangement for loading primary composting bins.

check, temperature in this bin should have peaked, and begun to fall. Material from this bin should be loaded into a secondary treatment bin (or stacking area) using the loader bucket. Allow material to "cascade" from the loader bucket to provide good turning and re-aeration as It is deposited in the secondary treatment area. If primary composting material is not moved on schedule, odors and fly breeding are likely to occur.

As birds near market weight, filling a primary bin in two or three days may be common. At this higher loading rate, the bottom of the bin may heat normally, followed by rapidly declining temperature. This will likely be caused by compaction and oxygen exclusion from the rapidly accumulating layers. Avoid this problem by loading two bins on alternate days to help prevent compaction, and to allow bin temperatures to be maintained longer.

Fly and Pathogen Control

Good facility design, construction, and containment, and strict adherence to two-stage operation is essential to control pathogenic organisms and nuisance insects. By keeping all material within the bins, fly larvae and pathogenic bacteria and viruses are destroyed through the combined effects of time and composting temperature. However, the effective temperatures are not usu-

ally achieved around the edges of primary bins. For this reason, disease organisms and insect larvae may survive without effects of turning and mixing in the secondary compost phase. Careless loading of carcasses against bin sidewalls generally will result in putrefaction and poor composting. To prevent these problems, do not place carcasses closer than 6 inches to sidewalls or the top surface to allow composting temperatures to "work."

Dead Bird Compost as Fertilizer and Soil Conditioner

Compost will be highly variable in nutrient content depending upon the amount and compassion of the manure and straw used, the age of the compost, and storage and handling. Dead bird compost samples analyzed at the University of Maryland had an average analysis as shown in Table 2. Because of its variability, compost should be tested like other agricultural organic wastes to assure best utilization. Dead bird compost should equal, and probably exceed, fertilizer quality of most other composted materials.

Table 2. Composition of dead poultry compost*

Analysis	Amount
Moisture, percent	46.10 +/- 2.19
Nitrogen, percent	2.20 +/- 0.19
Phosphorus (P2O5), percent	3.27 +/- 0.23
Potash (K2O), percent	2.39 +/- 0.13
Calcium, percent	1.33 +/- 0.15
Magnesium, percent	0.82 +/- 0.10
Sulfur, percent	0.40 +/- 0.02
Manganese, parts per million	122.00 +/- 18.00
Zinc, parts per million	245.00 +/- 32.00
Copper, parts per million	197.00 +/- 28.00

* University of Maryland, 1991.

Summary

Composting offers a convenient and environmentally acceptable method of disposal of normal poultry flock mortality. Careful attention to daily management will assure that all carcass tissue is exposed to the essential composting processes of heat and time. Disease and insect problems are minimal, and ground or surface water contamination as a direct result of composting are practically nil. The composting process stabilizes ingredients to a useful organic fertilizer that will not attract flies, rodents, or dogs.

Reviewed by Jactone Arogo, Extension specialist, Biological Systems Engineering