



**For unpermitted and permitted confinement feeding operations  
Professional Engineer<sup>1</sup> (PE) Design Certification**

This form is to be used in lieu of a Construction Design Statement (CDS) for confinement feeding operations with an Animal Unit Capacity (AUC)<sup>2</sup> of more than 500 Animal Units (AU), not required to have a PE, that are constructing a formed manure storage structure<sup>3</sup> with a site-specific design sealed by a PE. For more information contact the Department of Natural Resources (DNR) (see page 3 for contact information).

Name of operation: \_\_\_\_\_ Facility ID No. : \_\_\_\_\_

Location: \_\_\_\_\_  
(¼ ¼) (¼) (Section) (Tier & Range) (Name of Township) (County)

Describe the proposed confinement feeding operation structures: \_\_\_\_\_

**Aerial photos:** Aerial photos must be submitted that clearly show the location of all existing and proposed confinement feeding operation structures and show at least a one-mile radius around the structures. The photos must either show roads on the north and south or east and west sides of a section (so that a mile distance is apparent), or include a distance scale.

The photo(s) must show that the proposed structures comply with all statutory minimum required separation distances to the objects listed below:

- Residences (not owned by the permit applicant), churches, businesses, schools, public use areas
- Water wells (depends on type)
- Major water sources, wellhead or cistern of an agricultural drainage well or known sinkholes
- Water sources (other than major water sources) or surface intakes of an agricultural drainage well
- Designated wetlands
- Road right-of-way

The separation distance to each of the above objects must be noted with a straight line between the proposed structure(s) and the object. If any of the above objects is not located within one mile from the proposed structures, note the fact on the photo(s) or use additional pages. (Example: "No agricultural drainage wells within one mile.")

All separation distances that are not clearly in excess of the required minimum separation distance must be measured according to 567 IAC 65.11(5) using standard survey methods. Go to the DNR fact sheet page at <http://www.iowadnr.gov/Environment/LandStewardship/AnimalFeedingOperations/AFOResources/AFOFactsheets.aspx> and select DNR fact sheet "Distance Requirements for Construction" to find the required separation distances. Or, go directly to: <http://www.iowadnr.gov/Portals/idnr/uploads/forms/5421420.pdf>. An example aerial photo can be found on pages 18 to 19 of the AFO Construction Permit Application (DNR Form 542-1428). Or, go directly to: [http://www.iowadnr.gov/Portals/idnr/uploads/afo/fs\\_iemap.pdf](http://www.iowadnr.gov/Portals/idnr/uploads/afo/fs_iemap.pdf).

**Note:** If a master matrix is required, the photos must also show that the additional separation distances required for any points claimed in matrix criteria one through ten will be met for the objects listed above. Note the additional separation distance by drawing a straight line between the proposed structures and the matrix item.

**Design Certification:** Pursuant to 567 Iowa Administrative Code (IAC) 65.15(14)"a" or "b", I prepared an engineering report, plans and specifications for the operation referenced above. Design considerations were in conformance with the following design methods:

American Concrete Institute (ACI):	Portland Cement Association (PCA):	MidWest Plan Service (MWPS):
<input type="checkbox"/> ACI 318	<input type="checkbox"/> EB 075	<input type="checkbox"/> MWPS 36
<input type="checkbox"/> ACI 360	<input type="checkbox"/> EB 001	<input type="checkbox"/> MWPS TR9
<input type="checkbox"/> ACI 350	<input type="checkbox"/> ISO 72	

In addition, for non-dry manure the following additional requirements of 567 IAC 65.15(14)"a"(1) will be met:

1. The floors shall be a minimum of 5 inches thick. Nondestructive methods to verify the floor slab thickness may be required by the DNR. The results shall indicate that at least 95 percent of the floor slab area meets the minimum required thickness. In no case shall the floor slab thickness be less than 4.5 inches.

<sup>1</sup> PE includes a professional engineer licensed in the state of Iowa or an NRCS Engineer.

<sup>2</sup> To determine the Animal Unit Capacity (AUC) see the "Manure Storage Indemnity Fee" (DNR Form 5424021) or the "Construction Permit Application" (DNR Form 542-1428) or contact the DNR (see page 3 for contact information).

<sup>3</sup> Formed manure storage structure = covered or uncovered concrete or steel tank, and concrete pit below the building.

- 2. Wire mesh shall not be used as primary reinforcement for a formed manure storage structure with a depth of 4 feet or more. Fiber shall not be used as reinforcement.
- 3. Waterstops shall be installed in all areas where fresh concrete meets hardened concrete. Waterstops shall be made of plastic, rolled bentonite or similar materials approved by the department.
- 4. The vertical steel of all walls shall be extended into the footing and be bent at 90° or a separate dowel shall be installed. As an alternate to the 90° bend, the dowel may be extended at least 12 inches into the footing, with a minimum concrete cover of 3 inches at the bottom. In lieu of dowels, mechanical means or alternate methods may be used as anchorage of interior walls to footings.

**Karst Determination:** Go to DNR AFO Siting Atlas at <http://programs.iowadnr.gov/maps/afo/>. Search for your site by either scrolling into your location or entering an address or legal description in the bottom search bar. Left click on the location of your proposed structure. Make sure the karst layer box is checked on the map layers. If you cannot access the map or if you have questions about this issue, contact the AFO Engineer at 712-262-4177. Check one of the following:

- The site is not in karst or potential karst. Print and enclose the map with the name and location of the site clearly marked.
- The Siting Atlas has indicated that the site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)“c” are used:

567 IAC 65.15(14)“c”. Karst terrain—upgraded standards. If the site of the proposed formed manure storage structure is located in an area that exhibits karst terrain or an area that drains into a known sinkhole, the minimum concrete standards set forth in 65.15(14)“a” or “b” shall apply. In addition, the following requirements apply to all formed manure storage structures that store nondry or dry manure:

- (1) A minimum 5-foot vertical separation distance between the bottom of a formed manure storage structure and limestone, dolomite, or other soluble rock is required if the formed manure storage structure is not designed by a PE or an NRCS engineer.
- (2) If the vertical separation distance between the bottom of the proposed formed manure storage structure and limestone, dolomite, or other soluble rock is less than 5 feet, the structure shall be designed and sealed by a PE or an NRCS engineer who certifies the structural integrity of the structure and a 2-foot-thick layer of compacted clay liner material shall be constructed underneath the floor of the formed manure storage structure.
- (3) In addition, in an area that exhibits karst terrain or an area that drains into a known sinkhole, a PE, a Natural Resources Conservation Service (NRCS) engineer or a qualified organization shall submit a soil exploration study based on the results from soil borings or test pits to determine the vertical separation between the bottom of the formed structure and limestone, dolomite or other soluble rock. A minimum of two soil borings or two test pits, equally spaced within each formed structure, are required. After soil exploration is completed, each soil boring and pit shall be properly plugged with concrete grout, bentonite or similar materials.
- (4) Groundwater monitoring shall be performed as specified by the DNR.
- (5) Backfilling shall not start until the floor slats have been placed or permanent bracing has been installed, and shall be performed with material free of vegetation, large rocks, or debris.

**Alluvial Soils Determination:** Go to the AFO Siting Atlas as described above. Make sure the alluvial box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact the DNR Flood Plain section at 866-849-0321. Check one of the following:

- The site is not in alluvial soils. Print and enclose the map with the name and location of the site clearly marked.
- If the site is in alluvial soils contact the DNR Flood Plain section at 866-849-0321. You will be required to submit a petition for a declaratory order if less than 1,000 AUC or request a Flood Plain determination if 1,000 AUC or greater. Submit one of the following:
  - Include correspondence from the DNR showing the site is not in the 100-year floodplain or does not require a floodplain permit.
  - Include a copy of the Floodplain Permit if a floodplain permit is required.

**Groundwater separation requirements:** (check one of the following boxes):

- A drain tile will be installed along the footings to artificially lower the groundwater table, pursuant to 65.15(7)“b”.
- The drain tiles will have a device to allow shut off and monitoring, if the drain tiles do not have a surface outlet accessible in the property, as required in 65.15(7)“b”.
- In lieu of the drain tile, a certification signed by a PE, a groundwater professional certified pursuant to 567 IAC Chapter 134, a qualified staff from NRCS or a qualified organization is being submitted indicating that the groundwater elevation, measured according to 567 IAC 65.15(7)“c”, is below the bottom of the formed structure.

**Drainage Tile Certification:**

- Required only if applying for a construction permit and constructing three or more confinement feeding operations structures<sup>4</sup>. This must be signed by the person responsible for excavating the confinement feeding operation structure:

567 IAC 65.15(1) - *Drainage tile removal for new construction of a manure storage structure. Prior to constructing a manure storage structure, other than storage of manure in an exclusively dry form, the site for the animal feeding operation structure shall be investigated for drainage tile lines as provided in this subrule. All applicable records of known drainage tiles shall be examined for the existence of drainage tile lines.*

<sup>4</sup> Confinement feeding operation structure = animal feeding operation structure (confinement building, manure storage structure or egg washwater storage structure) that is part of a confinement feeding operation. Manure storage structures include formed and unformed manure storage structures.

c. The applicant for a construction permit for a formed manure storage structure shall investigate for tile lines during excavation for the structure. Drainage tile lines discovered upgrade from the structure shall be rerouted around the formed manure storage structure to continue the flow of drainage. All other drainage tile lines discovered shall be rerouted, capped, plugged with concrete, Portland cement concrete grout or similar materials or reconnected to upgrade tile lines. Drainage tile lines installed at the time of construction to lower a groundwater table may remain where located. A device to allow monitoring of the water in the drainage tile lines installed to lower the groundwater table and a device to allow shutoff of the drainage tile lines shall be installed if the drainage tile lines do not have a surface outlet accessible on the property where the formed manure storage structure is located.

"I certify that I have read and understand the requirements of 567 IAC 65.15(1)"c" and that to the best of my knowledge, information and belief, the proposed confinement feeding operation structures at:

Name of operation: \_\_\_\_\_ County: \_\_\_\_\_

Owner's name: \_\_\_\_\_

will not impede the drainage of established drainage tile lines which cross their property lines and if construction disturbs drainage tile lines, I will take the necessary measures to reestablish drainage and, upon completion of construction, file a statement that those measures were taken to reestablish drainage."

(Print Name of Excavating Representative)	(Representative's Signature)	(Date)
(Excavating Company)	(Address)	(Phone No.)

**Engineer's Certification:** I hereby certify that I have prepared a site-specific design for the formed manure storage structure<sup>3</sup>(s) referenced above that complies with the minimum concrete standards of 567 IAC 65.15(14). A copy of the site-specific engineering report, plans and specifications are attached.  
*(Include PE engineering seal, stamp, signature in contrasting color ink and date.)*

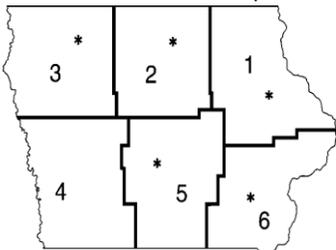
Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone No. \_\_\_\_\_  
 Fax No. \_\_\_\_\_

**Contractor's Certification** If the PE will not be present on site observing critical points of construction; I hereby certify that I will construct the formed manure storage structure(s) referenced above according to the engineering design.

(Print Contractor's Name)	(Contractor's Signature)	(Date)
(Company)	(Address)	(Phone No.)

**Mailing Instructions:** Mail this "PE Design Certification" according to the following:

- Operations with an AUC between 501 and 999 AU and constructing a formed manure storage structure, required to submit a manure management plan (MMP), prior to beginning construction must file this "PE Design Certification," the karst and alluvial soils documentation requested in pages 1 and 2, the MMP and fees to the nearest DNR Field Office:



<b>Field Office 1</b> 909 W Main St Ste 4 Manchester, IA 52057 (563) 927-2640	<b>Field Office 3</b> 1900 N Grand Ave Spencer, IA 51301 (712) 262-4177	<b>Field Office 5</b> 7900 Hickman Rd Ste 200 Windsor Heights, IA 50324 (515) 725-0268
<b>Field Office 2</b> 2300 15th St SW Mason City, IA 50401 (641) 424-4073	<b>Field Office 4</b> 1401 Sunnyside Ln Atlantic, IA 50022 (712) 243-1934	<b>Field Office 6</b> 1023 W Madison Washington, IA 52353 (319) 653-2135

- If a construction permit is required (AUC = 1,000 AU or more and constructing a formed manure storage structure), mail this form as required in the construction permit application form (DNR Form 542-1428).

If you have any questions regarding the concrete standards requirements and this PE Design Certification, contact an engineer of the AFO-Program at 712-262-4177, the nearest DNR Field Office, or visit [www.iowaDNR.gov/afo](http://www.iowaDNR.gov/afo).