TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE E: AGRICULTURE RELATED POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 506
LIVESTOCK WASTE REGULATIONS

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506.ILLUSTRATION B Irrevocable Standby Letter of Credit (Repealed)

AUTHORITY: Authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/27] and Section 55 of the Livestock Management Facilities Act and implementing the Livestock Management Facilities Act [510 ILCS 77].

SOURCE: Adopted in R97-15(A) at 21 Ill. Reg. 6851, effective May 20, 1997; amended in R97-15(B) at 22 Ill. Reg.20605, effective November 12, 1998; amended in R01-28 at 25 Ill. Reg. 14883, effective November 15, 2001; amended in R18-25 at 48 Ill. Reg. 3274, effective February 15, 2024.

SUBPART A: GENERAL PROVISIONS

Section 506.101 Applicability

This Subpart applies to 35 Ill. Adm. Code 506. The applicability of Subpart B, Standards for the Design and Construction of Livestock Waste Lagoons, is stated in Section 506.201. The applicability of Subpart C, Standards for the Design and Construction of Livestock Waste Handling Facilities Other Than Lagoons, is stated in Section 506.301.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.102 Severability

If any provision of this Part or its application to any person or under any other circumstances is adjudged invalid, such adjudication does not affect the validity of this Part as a whole or of any portion not adjudged invalid.

Section 506.103 Definitions

Except as stated in this Section, or unless a different meaning of a word or term is clear from the context, the definition of words or terms in this Part must be the same as that applied to the same words or terms in the Environmental Protection Act [415 ILCS 5] or the Livestock Management Facilities Act [510 ILCS 77]. For this Part, the terms included in this Section have the following meanings:

"Animal Feeding Operation" means a feeding operation as defined in the Illinois Environmental Protection Act and the rules promulgated under that Act concerning agriculture related pollution. [510 ILCS 77/10.7]

"Animal Unit" means a unit of measurement for any animal feeding operation calculated as follows:

Brood cows and slaughter and feeder cattle multiplied by 1.0.

Milking dairy cows multiplied by 1.4.

Young dairy stock multiplied by 0.6.

Swine weighing over 55 pounds multiplied by 0.4.

Swine weighing under 55 pounds multiplied by 0.03.

Sheep, lambs, or goats multiplied by 0.1.

Horses multiplied by 2.0.

Turkeys multiplied by 0.02.

Laying hens or broilers multiplied by 0.005.

Laying hens or broilers multiplied by 0.01 (if the facility has continuous overflow watering).

Laying hens or broilers multiplied by 0.03 (if the facility has a liquid manure handling system).

Ducks multiplied by 0.02. [510 ILCS 77/10.10]

For species of animals in an animal feeding operation not specifically listed in this definition, the animal unit factor is determined by dividing the average mature animal weight by 1,000. The Department must determine the average mature animal weight with guidance from the University of Illinois Cooperative Extension Service.

"Aquifer material" means sandstone that is five feet or more in thickness, or fractured carbonate that is ten feet or more in thickness; or sand, gravel, or sand and gravel, as defined in this Section, such that there is at least two feet or more present within any five-foot section of a soil boring performed in compliance with Sections 506.202 and 506.302 of this Part.

"Department" means the Illinois Department of Agriculture. [510 ILCS 77/10.20].

"Filter Strip" means a strip or area of vegetation for removing sediment, organic material, organisms, nutrients, and chemicals from runoff or wastewater. A filter strip must be sized to process the amount of material expected to be released from the lagoon.

"Flood fringe" means that portion of the floodplain outside the floodway.

"Floodplain" means the land adjacent to a body of water with ground surface elevations at or below the 100-year frequency flood elevation.

"Floodway", for the six counties including Cook, DuPage, Kane, Lake, McHenry, and

Will, means *the channel and that portion of the floodplain adjacent to a stream or watercourse* as designated by the Illinois Department of Natural Resources under Section 18g of the Rivers, Lakes, and Streams Act [615 ILCS 5/18g], *which is needed to store and convey the* anticipated future 100-*year frequency flood discharge* with no more than a 0.1-foot increase in stage due to the loss of flood conveyance or storage, and no more than a 10% increase in velocities. [615 ILCS 5/18g(d)(1)] For the remaining 96 counties, "floodway" means the channel of a river, lake, or stream and that portion of the adjacent land area that is needed to safely store and convey flood waters. Where floodways have been delineated for regulatory purposes, the mapped lines show the floodway encroachment limits and will be used. For other areas, floodway limits will be estimated, using hydrologic and hydraulic calculations, to preserve adequate conveyance and storage so that stage increases for the 100-year frequency flood would not exceed 0.1 foot.

"Grass Waterway" means a natural or constructed waterway, usually broad and shallow covered with erosion-resistant grasses, used to conduct surface water from or through cropland. A grass waterway is used to convey any lagoon release to an area or structure where it would be contained, such as at an additional berm, or processed, such as at a filter strip, or conveyed to another area, such as by a terrace.

"Gravel" or "Sand and gravel" means unconsolidated materials that contain a matrix (particles of two millimeters or less) that is consistent with the definition of "sand" and particles larger than two millimeters in size.

"Karst Area" means an area with a land surface containing sinkholes, large springs, disrupted land drainage, and underground drainage systems associated with karstified carbonate bedrock and caves or a land surface without these features but containing a karstified carbonate bedrock unit generally overlain by less than 60 feet of unconsolidated materials. [510 ILCS 77/10.24]

"Karstified Carbonate Bedrock" means a carbonate bedrock unit (limestone or dolomite) that has a pronounced conduit or secondary porosity due to dissolution of the rock along joints, fractures, or bedding plains. [510 ILCS 77/10.26]

"Lagoon" or "earthen livestock waste lagoon" *means any excavated, diked, or walled structure or combination of structures designed for biological stabilization and storage of livestock wastes. A lagoon does not include structures such as manufactured slurry storage structures or pits under buildings as defined in rules under the Environmental Protection Act concerning agriculture related pollution.* [510 ILCS 77/10.25]

"Licensed Professional Engineer" means a person, corporation, or partnership licensed under the laws of the State of Illinois to practice professional engineering. [415 ILCS 5/57.2]

"Licensed Professional Geologist" means an individual who is licensed under the laws of the State of Illinois *to engage in the practice of professional geology in Illinois.* [225 ILCS 745/15]

"Livestock Management Facility" means any animal feeding operation, livestock shelter, or on-farm milking and accompanying milk-handling area. Two or more livestock management facilities under common ownership, where the facilities are not separated by a minimum distance of ¼ mile, and that share a common livestock waste handling facility will *be considered a single livestock management facility. Livestock management* facilities *at educational institutions, livestock pasture operations,* facilities *where animals are housed on a temporary basis such as county and state fairs, livestock shows, race tracks, and horse breeding and foaling farms, and market holding facilities are not subject to the* Livestock Management Facilities Act or the requirements of this Part. [510 ILCS 77/10.30]

"Livestock shelter" means any covered structure, including livestock houses or barns, in which livestock are enclosed at any time.

"Livestock Waste" means livestock excreta and associated losses, bedding, wash waters, sprinkling waters from livestock cooling, precipitation polluted by falling on or flowing onto an animal feeding operation, and other materials polluted by livestock. [510 ILCS 77/10.35]

"Livestock Waste Handling Facility" means individually or collectively those immovable constructions or devices, except sewers, used for collecting, pumping, treating, or disposing of livestock waste or for the recovery of by-products from the livestock waste. Two or more livestock waste handling facilities under common ownership and where the facilities are not separated by a minimum distance of 1/4 mile will *be considered a single livestock waste handling facility*. [510 ILCS 77/10.40] The Livestock Management Facilities Act and this Part do not apply to: livestock waste handling facilities at educational institutions; livestock pasture operations; or facilities where animals are housed on a temporary basis, such as county and State fairs, livestock shows, race tracks, horse breeding and foaling farms, and market holding facilities.

"Maintained" means, with reference to a livestock waste lagoon, that the livestock waste lagoon is inspected (including inspection for burrow holes, trees and woody vegetation, proper freeboard, erosion, settling of the berm, berm-top integrity, leaks, and seepage) and preventive action is taken as necessary to assure the integrity of the lagoon and its berm and associated appurtenances.

"Modified" means structural changes to a lagoon that increase its volumetric capacity. [510 ILCS 77/10.43]

"New Facility" means a livestock management facility or a livestock waste handling facility the construction or expansion of which is commenced on or after May 19, 1996 (the effective date of the Livestock Management Facilities Act). Expanding a facility

where the fixed capital cost of the new components constructed within a 2-year period does not exceed 50% of the fixed capital cost of a comparable entirely new facility will not be considered *a new facility as used in the Livestock Management Facilities Act.* [510 ILCS 77/10.45] For facilities that have stopped operation after July 12, 1999, starting operations at a facility that has livestock shelters left intact and that has completed the requirements imposed under Section 13(k) of the Livestock Management Facilities Act [510 ILCS 77/13(k)] and 8 Ill. Adm. Code 900.508. For facilities that have stopped operation before July 13, 1999, starting operations at a facility that has livestock shelters left intact and that has been operated as a livestock management facility or livestock waste handling facility for 4 consecutive months at any time within the previous 10 years is not be considered a new or expanded livestock management or waste handling facility.

"Owner or Operator" means any person who owns, leases, controls, or supervises a livestock management facility or livestock waste-handling facility. [510 ILCS 77/10.50]

"Person" means any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, political subdivision, state agency, or any other legal entity or their legal representative, agent, or assigns. [510 ILCS 77/10.55]

"Placed in service" means the placement of livestock waste in a livestock waste handling facility once the construction or modification is completed in compliance with this Part.

"Sand" means unconsolidated materials, where 70% or more of the particles are of size 0.06 millimeters to 2.00 millimeters, and which, according to the USDA soil texture classification scheme, includes soil textures of sand, and loamy sand, and portions of sandy loam and sandy clay loam.

"Seasonal high water table" means the highest level of the water table encountered annually.

"Terrace" means an embankment or combination of embankment and channel constructed across a slope to control erosion by diverting and temporarily storing surface runoff instead of permitting it to flow uninterrupted down the slope. A terrace may be used to convey the released material to a grass waterway, a filter strip, or a secondary berm.

"USDA-NRCS" means the United States Department of Agriculture's Natural Resources Conservation Service.

"Void" means an underground opening generally produced by the dissolution of rock in a karst area.

"Water table" means the surface on which the fluid pressure in the soil pore space is equal to the atmospheric pressure. The location of the water table is determined by the level at which water stands in a shallow well open along its length and penetrating the

surficial deposits just deeply enough to encounter standing water in the bottom.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.104 Incorporations by Reference

a) The Board incorporates the following materials by reference:

1) APHA. American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005, (202) 789-5600, "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1995.

2) ASAE. American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085-9659, (616) 429-5585:
"Manure Storages", ASAE Standards 1998, ASAE EP393.2, December 1997, pp. 649-652.
"Design of Anaerobic Lagoons for Animal Waste Management", ASAE Standards 1998, ASAE EP403.2, August 1993, pp. 656-659.

3) IDNR-ISGS. Illinois Department of Natural Resources-Illinois State Geological Survey, 615 E. Peabody Drive, Champaign, IL 61820-6964, (217) 333-4747, "Karst Terrains and Carbonate Rocks of Illinois", Illinois Map 8, 1997.

4) MWPS. MidWest Plan Service, 122 Davidson Hall, Iowa State University, Ames, IA 50011-3080, (515) 294-4337:
"Livestock Waste Facilities Handbook" MWPS-18, 3rd Edition, 1993.
"Concrete Manure Storages Handbook" MWPS-36, 1st Edition, 1994.
"Circular Concrete Manure Tanks" Technical Resource TR-9, March 1998.

5) NTIS. National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4600, "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA Publication No. EPA-600/R-93/100 (August 1993), Doc. No. PB 94-120821.

6) USDA-NRCS. United States Department of Agriculture - Natural Resources Conservation Service, 1902 Fox Drive, Champaign, IL 61820:
"Waste Holding Pond", Illinois Field Office Technical Guide, Section IV, IL425, p. 5, June 1992.
"Waste Storage Structure", Illinois Field Office Technical Guide, Section IV, IL313, p. 6, June 1992.
"Waste Treatment Lagoon", Illinois Field Office Technical Guide, Section IV, IL359, p. 5, June 1992.

b) This Section incorporates no later amendments or editions, but does include errata sheets specific to the referenced document.

(Source: Amended at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.105 Recordkeeping (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.106 Alternatives, Modifications, and Waivers

a) All requests for alternatives, modifications, and waivers to this Part, where allowed by Sections 13(e) and 15(a) of the Act [510 ILCS 77/13(e),15(a)] or this Part must be made in writing to the Department. Construction must not begin or continue until the request for alternative, modification, or waiver is granted.

b) Each request for an alternative, modification, or waiver must contain a certification from a Licensed Professional Engineer or Licensed Professional Geologist, as relevant, that the grant of the modification is at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as the stated requirements or that the alternative or waiver is at least as protective as the stated requirements.

c) The Department must notify the applicant in writing of its determination within 30 days after receipt of the request for an alternative, modification, or waiver. To grant the requested alternative, modification, or waiver, the Department must determine that the modification is at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as the stated requirements or that the alternative or waiver is at least as protective as the stated requirements.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

SUBPART B: STANDARDS FOR THE DESIGN AND CONSTRUCTION OF LIVESTOCK WASTE LAGOONS

Section 506.201 Applicability

This Subpart applies to any new or modified lagoon, that the Department has not approved the design for before November 15, 2001. The standards and specifications for livestock waste lagoon construction contained in this Subpart must be used in the design plans and construction of the lagoon in compliance with the registration of lagoons required in 8 Ill. Adm. Code 900.Subpart F.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.202 Site Investigation

a) The owner or operator of a lagoon constructed under this Subpart must conduct a

site investigation in compliance with this Section to determine the following:

1) Whether aquifer material is considered present (or not present) within 50 feet of the planned bottom of the lagoon;

2) Whether the proposed lagoon is to be located within the floodway or flood fringe of a 100-year floodplain; and

3) Whether the proposed lagoon is to be located within a karst area or within 400 feet of a natural depression in a karst area.

b) The owner or operator must perform one or more soil borings that must be located within the final lagoon area or within 20 feet of the final exterior berm toe. The boring must be performed to determine the presence of aquifer material or karstified carbonate bedrock as follows:

1) The soil boring must extend to a depth that includes 50 feet below the planned bottom of lagoon native soil or to bedrock;

2) If bedrock is encountered, additional soil borings may be necessary to verify the presence of aquifer material or karstified carbonate bedrock;

3) Continuous samples must be recovered from each soil boring; and

4) Upon completion, the borings must be properly abandoned and sealed under the Illinois Water Well Construction Code at 77 Ill. Adm. Code 920.120.

c) If the Department determines that additional soil borings are necessary to ensure the protection of the groundwater, the surface water, or the structural integrity of the livestock waste management facility, the Department must require additional soil borings.

d) As an alternative to performing the soil borings required under subsection (b) or (c), the owner or operator of the lagoon may propose to the Department to use alternative information sources. The Department must evaluate the proposal; determine whether the alternative information sources will result in a site investigation that will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as would have resulted from data resulting from soil borings; and notify the owner or operator of the Department's finding.

e) Despite the other requirements of this Subpart, if the site investigation determines that the lagoon is to be located in the flood fringe of a 100-year floodplain, the design of the lagoon must comply with Section 506.206.

f) If the results of the soil boring conducted under Section 506.202(b) indicate the proposed lagoon is to be located in a karst area or if the proposed lagoon is to be located within an area designated as "Sink hole areas" on "Karst Terrains and Carbonate Rocks of Illinois", IDNR-ISGS Illinois Map 8, the following requirements must be met:

1) The Department must conduct a visual inspection of the surrounding area to determine the presence of natural depressions during the pre-construction site inspection as required under 8 Ill. Adm. Code 900.604(a). Construction must not occur within 400 feet of a natural depression in a karst area; and

2) The Licensed Professional Engineer or Licensed Professional Geologist must evaluate the results of the soil boring conducted under subsection (b). If the soil boring reveals a void of 1 foot or greater in vertical distance, the following requirements must be met:

A) The Department may require additional borings to determine the extent of the void;

B) Despite the other requirements of this Subpart, the owner or operator must submit to the Department a plan for the design of the lagoon that must include the additional design requirements stated in Section 506.207 and must include any additional design requirements necessary by the Licensed Professional Engineer; and

C) The Department must review and approve the plan required under subsection (f)(2)(B) before construction. The Department may also require additional design criteria before the plan is approved and construction may begin. If no voids of 1 foot or greater are discovered from the soil boring performed, the design must include the additional requirements in Section 506.207.

g) The site investigation in compliance with subsection (b), (c), (d), (e), or (f) must be conducted under the direction of a Licensed Professional Engineer or Licensed Professional Geologist.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.203 Registration (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.204 Lagoon Design Standards

a) The owner or operator of *any livestock waste lagoon subject to* this Subpart must *construct or modify* the lagoon *in accordance with*:

1) "*Design of anaerobic lagoons for animal waste management"*, ASAE Engineering Practice 403.2; *or the guidelines published by the United States Department of Agriculture's Natural Resource Conservation Service titled "Waste Treatment Lagoon",* which are incorporated by reference in Section 506.104; and

2) The additional design standards specified in subsections (c) through (h). [510 ILCS 77/15(a)]

b) *The department may require changes in design or additional requirements to protect groundwater, such as extra liner depth or synthetic liners, when it appears groundwater could be impacted*. [510 ILCS 77/15(a)]

c) The owner or operator must conduct a site investigation in compliance with Section 506.202 to determine if aquifer material is present (or not present) within 50 feet of the planned bottom of the lagoon.

d) The owner or operator must, as a part of the lagoon design, include the use of a liner and implement groundwater monitoring according to the following conditions:

1) If the uppermost aquifer material is located above or within 20 feet of the lowest point of the planned lagoon bottom (as measured from the top of any proposed liner), then the lagoon design must include both a liner and groundwater monitoring.

2) If the uppermost aquifer material is located between 20 to 50 feet from the lowest point of the planned lagoon (as measured from the top of any proposed liner), then the lagoon design must include a liner, but no groundwater monitoring is required.

3) If no aquifer material is located within 50 feet from the lowest point of the planned lagoon (as measured from the top of any proposed liner), then the lagoon design does not require a liner or groundwater monitoring.

e) If the owner or operator determines that a liner is required for the lagoon under this Section, the design of the lagoon must include an in-situ soil liner, borrowed clay or clay/bentonite mixture, or a synthetic liner in compliance with Section 506.205.

f) If the owner or operator determines that groundwater monitoring is required for the lagoon under this Section, the design of the lagoon must implement a groundwater monitoring program in compliance with Section 506.206 and 8 Ill. Adm. Code 900.Subpart F.

g) Any livestock waste lagoon subject to this Part must meet or exceed the following:

1) Berm:

A) The minimum berm-top width must be 8 feet;

B) The berm may contain no outlet piping that extends through the berm unless the piping discharges to another lagoon or is a component of a recirculating flush system;

2) Berm slope:

A) Exterior and normally exposed interior (above the liquid level elevation corresponding to the summation of the sludge volumes and minimum design volume) earthen walls must have side slopes not steeper than a 3 to 1 ratio of horizontal to vertical and a vegetative cover must be established on any exposed berm areas and kept mowed or otherwise maintained to eliminate erosion or other berm deterioration;

B) Interior berm earthen walls below the liquid level elevation corresponding to the summation of the sludge volumes and minimum design volume must have side slopes not steeper than a 3 to 1 ratio of horizontal to vertical or, if designed by a Licensed Professional Engineer and maintained to eliminate berm deterioration, a 2 to 1 ratio of horizontal to vertical;

3) The lagoon's total design volume must be at least the volume calculated as the summation of the following:

A) A minimum design volume, as calculated under subsection 5.4.1.1, ASAE EP403.2, ASAE Standards 1998, pp. 656-659;

B) A livestock waste volume, that must be sufficient to store the waste generated by the facility for at least 270 days as determined in ASAE EP403.2, ASAE Standards 1998, p. 656;

C) Runoff and washdown volumes generated during a 270-day period, including all runoff and precipitation from lots, roofs, or other surfaces where collected precipitation is directed into the lagoon, plus the volume of any washdown liquids used within the facility that are also directed into the lagoon. In no case must this volume be less than the precipitation and runoff generated by a 25-year, 24-hour storm event and directed to the lagoon; and

D) A sludge accumulation volume, as calculated under subsection 5.4.1.4, ASAE EP403.2, ASAE Standards 1998, p. 658;

4) In addition to the lagoon's total design volume, a freeboard must be provided as follows:

A) For lagoons serving a livestock management facility with a maximum design capacity of less than 300 animal units and not collecting runoff from areas other than the exposed surface of the lagoon (including associated interior berm slopes and flat berm-top areas), the top of the settled embankment must be at least 1 foot above the fluid surface level of the lagoon total design volume; or

B) For all other lagoons, the top of the settled embankment must be at least 2 feet above the fluid surface level of the lagoon total design volume;

5) Subsurface drainage lines in the immediate area of the livestock waste lagoon must be removed or relocated to provide for a minimum separation distance of at least 50 feet between the outermost extent of the lagoon (exterior toe of the berm) and the subsurface drainage line;

6) The minimum separation distance between the outermost extent of a lagoon (exterior toe of the berm) and any potential route of groundwater contamination, as defined in the Illinois Environmental Protection Act [415 ILCS 5] must be at least 100 feet. In addition, the minimum separation distance between the outermost extent of a lagoon (exterior toe of the berm) and a non-potable well, an abandoned or plugged well, a drainage well, or an injection well must be at least 100 feet;

7) The design and construction of the lagoon must include the installation of a lagoon liquid level board or staff gauge within the interior of the liquid storage volume. The liquid level board or staff gauge must include a mark at the liquid level elevation corresponding to the summation of the sludge volume and minimum design volume and must be designated as the "STOP PUMPING" elevation. The liquid level board or staff gauge must also be marked at the liquid level elevation corresponding to the summation of the sludge volume, minimum design volume, runoff and washdown volumes, and livestock waste volume and must be designated as the "START PUMPING" elevation;

8) *The livestock waste supply to a single-stage lagoon must be below the minimum design volume level* [510 ILCS 77/25(b)(2)]; and

9) The location of the lagoon and the associated livestock management

facility must comply with all setback provisions of the Illinois Environmental Protection Act [415 ILCS 5], the Livestock Management Facilities Act [510 ILCS 77], and the rules promulgated thereunder.

h) *The owner or operator of the earthen livestock lagoon may, upon written request and with* written *approval from the Department*, *modify or exceed these standards in order to meet site specific objectives*. [510 ILCS 77/15(a)] The owner or operator must demonstrate that such modification is at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.205 Liner Standards

a) The design of a liner constructed from in-situ soils, borrowed clay or a clay/bentonite mixture, or a synthetic liner under Section 506.204(d) must comply with this Section.

b) A liner constructed using in-situ soil or borrowed clay or clay/bentonite mixtures must meet the following standards:

1) The minimum liner thickness must be 2 feet;

2) The liner must be constructed in lifts not to exceed 6 inches in compacted thickness;

3) The liner must be compacted to achieve a hydraulic conductivity equal to or less than 1×10^{-7} centimeters/second; and

4) The construction and compaction of the liner must be carried out to reduce void spaces and allow the liner to support the loadings imposed by the waste disposal operation without settling.

c) Any synthetic liner used in the construction of a livestock waste lagoon must meet the following standards:

1) The liner must be designed to perform equivalent to or better than a liner that conforms to subsection (b);

2) The liner manufacturer must provide to the owner or operator the liner maintenance guidelines and must certify that the liner is chemically compatible with:

A) The livestock waste being stored; and

B) The supporting soil materials;

3) The liner must be supported by a compacted base free from sharp objects;

4) The liner must have sufficient strength and durability to function at the site for the design period under the maximum expected loadings imposed by the waste and equipment and stresses imposed by settlement, temperature, construction, and operation;

5) The liner seams must be made in the field according to the manufacturer's specifications. All sections must be arranged so that the use of field seams is minimized and seams are oriented in the direction subject to the least amount of stress; and

6) The owner or operator must maintain a copy of the manufacturer's compatibility statement and liner installation and maintenance guidelines at the facility.

d) The design, construction, and installation of the liner in compliance with this Section must be conducted under the direction of a Licensed Professional Engineer. Upon completion of construction or installation of the liner, the supervising Licensed Professional Engineer must certify, under 8 Ill. Adm. Code 900.605(a), that the liner complies with this Section. Such certification must include all supporting justification and data.

e) The owner or operator of a livestock waste lagoon must submit to the Department a copy of the Licensed Professional Engineer's Certification before placing the lagoon in service in compliance with 8 Ill. Adm. Code 900.605.

f) *The owner or operator of the earthen livestock lagoon may,* upon written request and *with* written *approval from the Department, modify or exceed these standards in order to meet site specific objectives*. [510 ILCS 77/15(a)] The owner or operator must demonstrate that such modification is at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.206 Groundwater Monitoring

a) The owner or operator of any livestock waste lagoon required to implement groundwater monitoring under Section 506.204(d) must implement a monitoring program that complies with this Section and 8 Ill. Adm. Code 900.Subpart F.

b) The groundwater monitoring network must consist of at least three monitoring wells located within 20 feet of the exterior toe of the berm. At least two of the required wells must be located downgradient of the lagoon based on local

groundwater conditions. The groundwater monitoring network design must consider multiple cell lagoons as a single lagoon.

c) The monitoring wells must be installed in compliance with the following:

1) The requirements of the Illinois Water Well Construction Code at 77 Ill. Adm. Code 920.170;

2) The top of the well screen must be set at the estimated seasonal low water table elevation;

3) Monitoring wells must use a minimum of a five-foot screened interval; and

4) The screen must be set in a sand pack that extends at least one foot above and one foot below the screened interval.

d) The owner or operator must sample the wells, analyze the samples, and report the results in compliance with 8 Ill. Adm. Code 900.Subpart F.

e) *The owner or operator of the earthen livestock lagoon may,* upon written request and *with* written *approval from the department, modify or exceed these standards in order to meet site specific objectives*. [510 ILCS 77/15(a)] The owner or operator must demonstrate that such modification must be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility in compliance with this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.207 Construction in a Karst Area

a) *A new earthen livestock waste lagoon constructed in a karst area* must *be designed to prevent seepage of the stored material to groundwater. Owners or operators of proposed facilities* must *consult with the local soil and water conservation district, the University of Illinois cooperative extension service, or other local, county, or state resources relative to determining the possible presence or absence of such areas*. [510 ILCS 77/15/(a-5)(2)]

b) Any lagoon subject to this Subpart, constructed in a karst area, must be designed and constructed utilizing a rigid material such as concrete or steel.

c) The owner or operator of the earthen livestock lagoon may, upon written request and with written approval from the Department, modify or exceed the standards of this Section to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.208 Construction in a Flood Fringe Area

A new earthen livestock waste lagoon may be constructed within the portion of a 100-year floodplain that is within the flood fringe and outside the floodway if *the facility is designed and constructed so that livestock waste is not readily removed during flooding and meets the requirements set forth in the Rivers, Lakes, and Streams Act* [615 ILCS 5]*, Section 5-40001 of the Counties Code* [55 ILCS 5/5-40001]*, and executive order number 4 (1979)*. [510 ILCS 77/15(a-5)(1)] The following criteria must be incorporated into the design of a lagoon proposed for construction in the flood fringe of a 100-year floodplain:

a) The lagoon berms must be designed and constructed to withstand the hydrostatic pressures from flood waters that may be exerted on the berms during a flood event.

b) The elevation of the lowest point on the berm top must be at the summation of the elevation of the 100-year flood plus a freeboard. The freeboard height must be a minimum of two feet.

c) For lagoons with unequal length and width dimensions, the lagoon must be oriented with the longest dimension parallel to the expected direction of floodwater flow.

d) Any monitoring wells installed under Section 506.206 must be mounted flush with the surrounding soil surface or otherwise physically protected from flood waters.

e) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.209 Lagoon Closure and Ownership Transfer (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.210 Secondary Containment

Despite *any other requirement of this subpart or 8 Ill. Adm. Code 900, every earthen livestock waste lagoon constructed* under *this subpart* must *include the construction of a secondary berm, filter strip, grass waterway, or terrace, or any combination of those, outside the perimeter of the*

primary berm if an engineer licensed under the Professional Engineering Practice Act of 1989 and retained by the registrant determines, with the concurrence of the department, that construction of such a secondary berm or other feature or features is necessary in order to ensure against a release of livestock waste from the lagoon that encroaches or is reasonably expected to encroach upon land other than the land occupied by the livestock waste handling facility of which the lagoon is a part; or that enters or is reasonably expected to enter the waters of this state; or that enters or may reasonably be expected to enter a natural depression in a karst area and must be so designed. [510 ILCS 77/15(a)] The following criteria must be incorporated into the design of a system used for secondary containment:

a) A grass waterway constructed, installed, or used for this Section must meet or exceed the following:

1) A grass waterway must be designed and constructed to transfer the maximum expected flow rate of livestock waste that may reasonably be expected to be released from the lagoon;

2) A grass waterway must direct the flow of livestock waste away from the lagoon berm to a filter strip, secondary berm, terrace, or combination of these; and

3) Vegetation must be established and maintained to provide adequate ground cover.

b) A filter strip constructed, installed, or used for this Section must meet or exceed the following:

1) A filter strip must be designed and constructed to function at the maximum expected hydraulic loadings that may reasonably be expected to come from the lagoon; and

2) Vegetation must be established and maintained to provide adequate ground cover.

c) A secondary berm constructed, installed, or used for this Section must meet or exceed the following:

1) The storage volume created due to the construction of a secondary berm must be of sufficient capacity to contain the portion of the lagoon liquid that may reasonably be expected to be released from the lagoon plus any accumulated precipitation; and

2) A vegetative cover must be established. The area must be maintained by periodic mowing, the removal of woody plant species, or other measures to prevent erosion and berm deterioration.

d) A terrace constructed, installed, or used for this Section must meet or exceed the following:

1) The terrace must direct the livestock waste to a filter strip or grass waterway constructed or installed under this Section; and

2) Vegetation must be established and maintained to provide adequate ground cover on those portions of the terrace where crops are not grown.

e) The owner or operator of the earthen livestock lagoon may, upon written request and with written approval from the Department, modify or exceed the standards of this Section to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste management facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

SUBPART C: STANDARDS FOR THE DESIGN AND CONSTRUCTION OF LIVESTOCK WASTE HANDLING FACILITIES OTHER THAN LAGOONS

Section 506.301 Applicability

The applicability of this Subpart is as follows:

a) Sections 506.302, 506.310, 506.311, and 506.312 of this Subpart apply to the newly constructed livestock waste handling components of new livestock waste handling facilities, other than livestock waste lagoons, that the Department has not approved the design for before November 15, 2001.

b) Sections 506.303, 506.304, 506.305, 506.306, 506.307, 506.308, and 506.309 apply to the newly constructed livestock waste handling components of new or existing livestock waste handling facilities, other than livestock waste lagoons, that the Department has not approved the design for before November 15, 2001.

The standards and specifications for livestock waste handling facility design and construction contained in this Subpart must be used in the design plans and construction of the waste handling facility in compliance with 8 Ill. Adm. Code 900.Subpart E.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.302 Site Investigation

a) The owner or operator of a livestock waste handling facility must conduct a site investigation in compliance with this Section to determine the following:

1) Whether aquifer material is considered present (or not present) within 5 feet of the planned bottom of the livestock waste handling facility;

2) Whether the proposed facility is to be located within the floodway or flood fringe of a 100-year floodplain; and

3) Whether the proposed facility is to be located within a karst area or within 400 feet of a natural depression in a karst area.

b) Except for facilities that are proposed to be located within an area designated as "Sink hole areas" on "Karst Terrains and Carbonate Rocks of Illinois", IDNR-ISGS Illinois Map 8, the owner or operator must obtain soil samples from within the final livestock waste handling facility area or within 20 feet of the livestock waste handling facility boundaries. The sampling must be performed to determine the presence of aquifer material or karstified carbonate bedrock as follows:

1) The soil sampling must begin at the soil surface and extend to a depth that includes a minimum of 5 feet below the planned bottom of the livestock waste handling facility native soil or to bedrock;

2) If bedrock is encountered, additional soil samplings may be necessary to verify the presence of aquifer material or karstified carbonate bedrock;

3) Continuous samples must be recovered from each soil sampling; and

4) Upon completion, any boring used for sampling must be properly abandoned and sealed under the Illinois Water Well Construction Code at 77 Ill. Adm. Code 920.120. Any excavation used for sampling that is within the construction boundaries of the livestock management facility or livestock waste handling facility must be restored by adding soil compacted in lifts no greater than 6 inches.

c) If the Department determines that additional soil samplings are necessary to ensure the protection of the groundwater, the surface water, or the structural integrity of the livestock waste handling facility, the Department must require additional soil samplings.

d) As an alternative to performing the soil sampling required under subsection (b) or (c) , the owner or operator of the livestock waste handling facility may propose to the Department to use alternative information sources. The Department must evaluate the proposal; determine whether the alternative information sources will result in a site investigation that will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as would have resulted from data resulting from soil borings; and notify the owner or operator of the Department’s finding.

e) Despite the other requirements of this Subpart, if aquifer material is located above or within 5 feet of the lowest point of the livestock waste handling facility, the design of the facility must comply with Section 506.310 .

f) Despite the other requirements of this Subpart, if the site investigation determines that the livestock waste handling facility is to be located in the flood fringe of a 100-year floodplain, the design of the facility must comply with Section 506.311 .

g) If the proposed livestock waste handling facility is to be located within an area designated as "Sink hole areas" on "Karst Terrains and Carbonate Rocks of Illinois", IDNR-ISGS Illinois Map 8 or if the results of the soil sampling conducted under Section 506.302(b) indicate the proposed livestock waste handling facility is to be located in a karst area, the following requirements must be met:

1) The Department must conduct a visual inspection of the surrounding area to determine the presence of natural depressions during the pre-construction site inspection as required under 8 Ill. Adm. Code 900.505(a). Construction must not occur within 400 feet of a natural depression in a karst area;

2) The owner or operator must perform one or more soil borings that must be located within the final livestock waste handling facility area or within 20 feet of the livestock waste handling facility boundaries to determine the presence of voids. The boring must begin at the soil surface and extend to a depth that includes a minimum of 20 feet below the planned bottom of the livestock waste handling facility;

3) Continuous samples must be recovered from each boring;

4) The Licensed Professional Engineer, Licensed Professional Geologist, or USDA-NRCS representative designated to perform such functions must evaluate the results of the soil boring. If a void of 1 foot or greater in vertical distance is discovered from the soil boring performed under subsection (g)(2), the following requirements must be met:

A) The Department may require additional borings to determine the extent of the void;

B) Despite the other requirements of this Subpart, the owner or operator must submit to the Department a plan for the design of the facility that must include the additional design requirements in Section 506.312 and must include any additional design requirements necessary by the Licensed Professional Engineer; and

C) The Department must review and approve the plan required under subsection (g)(4)(B) before construction. The Department may also require additional design criteria before the plan is approved and construction may begin.

If no voids of 1 foot or greater in vertical distance are discovered from the soil boring performed, the design must include the additional requirements in Section 506.312.

5) Upon completion of the borings required under subsection (g), the borings must be properly abandoned and sealed under the Illinois Water Well Construction Code at 77 Ill. Adm. Code 920.120.

h) The site investigation in compliance with subsections (b), (c), (d), (e), (f), and (g) must be conducted under the direction of a Licensed Professional Engineer, a Licensed Professional Geologist, or a representative of the USDA-NRCS designated to perform such functions.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.303 Non-lagoon Livestock Waste Storage Volume Requirements

a) Livestock waste handling facilities *that handle waste in a liquid or semi-solid form* must *be designed to contain a volume of* at least *the amount of waste generated during 150 days of facility operation at design capacity*. [510 ILCS 77/13(a)(1)(B)] In addition, the design and volume of livestock waste storage structures that handle waste in a liquid or semi-solid form must include the following:

1) Runoff volumes generated during a 150-day period, including all runoff and precipitation from lots, roofs, and other surfaces where precipitation is directed into the storage structure. In no case must this volume be less than the precipitation and runoff generated by a 25-year, 24-hour storm event and directed to the livestock waste handling facility;

2) The volume of all washdown liquid generated during the 150-day period that is directed into the livestock waste handling facility; and

3) A freeboard of 2 feet, except for structures with a cover or otherwise protected from precipitation.

b) Livestock waste handling facilities that handle waste in a solid form must *be sized to store* at least *the amount of waste generated during 6 months of facility operation at design capacity*. [510 ILCS 77/14(a)(4)]

c) Pump stations, settling tanks, pumps, piping, or other components of a livestock waste handling facility that temporarily hold or transport waste to a storage

facility sized under this Section are exempt from the storage volume requirements of this Section.

d) The design of any livestock waste storage structure required to incorporate a freeboard under subsection (a) must include a liquid level board or staff gauge. The liquid level board or staff gauge must include a mark corresponding to the summation of the livestock waste volume and the additional washdown volume under subsection (a) and must be designated as the "START PUMPING" elevation.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.304 General Design and Construction Standards

a) Livestock waste handling facilities must be designed and constructed according to the following requirements:

1) Storage and transport surfaces, other than those constructed of concrete, intended to come into contact with livestock waste must be constructed or installed to achieve a hydraulic conductivity equal to or less than 1×10^{-7} centimeters per second.

2) Storage and transport surfaces constructed of concrete and intended to come into contact with livestock waste must be constructed or installed to achieve a hydraulic conductivity equal to or less than 1×10^{-6} centimeters per second.

3) Despite subsection (a)(1), storage and transport surfaces constructed at enclosed livestock waste handling facilities intended to house poultry that come into contact with livestock waste in dry or solid form must be constructed or installed to achieve a hydraulic conductivity equal to or less than 1×10^{-6} centimeters per second.

4) The livestock waste handling facility must withstand the following loads:

A) Lateral loads due to soil and equipment, which must be obtained from Table 2 of the MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36;

B) Lateral loads due to livestock waste scraping and handling equipment;

C) Lateral and vertical loads due to the handling and storage of livestock waste;

D) Vertical loads on tank tops, slats, and other horizontal surfaces,

which must be obtained from Table 3 of the MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36; and

E) Vertical loads due to mobile equipment, stationary equipment, and structures housing the livestock.

5) The construction materials must be chemically compatible with the livestock waste being handled and stored and the supporting soil materials.

6) The livestock waste handling facility must be designed and constructed to prevent erosion and damage resulting from the transport, handling, and storage of livestock waste.

7) Existing subsurface drainage lines in the immediate area of the livestock waste handling facility must be removed or relocated to provide for a minimum separation distance of at least 50 feet between the outermost extent of the livestock waste handling facility and the subsurface drainage line.

8) The minimum separation distance between the outermost extent of the livestock waste handling facility and any potential route of groundwater contamination, as defined in the Illinois Environmental Protection Act [415 ILCS 5], must be at least 100 feet. In addition, the minimum separation distance between the outermost extent of the livestock waste handling facility and a non-potable well, an abandoned or plugged well, a drainage well, or an injection well must be at least 100 feet.

9) The design and construction of livestock waste handling facilities must include a backflow prevention device to prevent siphoning or gravity flow of livestock waste in the opposite direction of intended use.

b) In addition to the requirements listed in this Section, livestock waste handling facilities must be designed and constructed according to the following:

1) Concrete livestock waste storage tanks must be designed and constructed in compliance with MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36, or, in the case of circular concrete tanks, Circular Concrete Manure Tanks, MWPS TR-9.

2) Components of livestock waste handling facilities that temporarily hold or transport waste for liquid and solid separation, including settling basins and settling tanks, must be designed and constructed in compliance with MidWest Plan Service Livestock Waste Facilities Handbook, MWPS-18, or NRCS Waste Storage Structure, IL313.

3) Components of livestock waste handling facilities holding semi-solid

waste, including picket dam structures, must be designed and constructed in compliance with MidWest Plan Service Livestock Waste Facilities Handbook, MWPS-18, or similar standards used by the USDA-NRCS.

4) Components of livestock waste handling facilities holding solid waste, including temporary manure stacks, must be designed and constructed in compliance with MidWest Plan Service Livestock Waste Facilities Handbook, MWPS-18, or similar standards used by the USDA-NRCS, including Waste Storage Structure, IL313.

5) Holding ponds used for the storage of livestock feedlot run-off and waste storage ponds must be designed and constructed in compliance with MidWest Plan Service Livestock Waste Facilities Handbook, MWPS-18, or similar standards used by the USDA-NRCS, including Waste Holding Pond, IL425.

c) In areas where the seasonal high water table may encroach upon the bottom of the livestock waste storage structure, a perimeter foundation drainage tubing must be installed as follows:

1) The drainage tubing must be located at a horizontal distance that provides sufficient drainage to maintain the water table elevation below the bottom of the footings.

2) The tubing must drain freely to a surface water outlet or subsurface drainage outlet.

3) The tubing must include a sampling port to allow the monitoring, sampling, and reporting of any discharge from the tubing in compliance with 8 Ill. Adm. Code 900.Subpart E.

4) The owner or operator must take necessary measures to divert the discharge from the drainage tubing, away from surface water, if monitoring results under subsection (c)(3) indicate that the tubing is discharging livestock waste. Such measures must include diverting the flow to a crop production area naturally lower in elevation than the livestock facility or providing a manhole with a gate valve that could be closed in an emergency.

d) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.305 Additional Concrete Design and Construction Standards

a) In addition to the requirements in Section 506.304, the design and construction of concrete components of livestock waste handling facilities must meet the following requirements:

1) Construction joints must be incorporated into the concrete in compliance with the design guidance provided in MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36, or, in the case of circular concrete tanks, Circular Concrete Manure Tanks, TR-9;

2) Water stops must be incorporated into construction joints in compliance with the design guidance provided in MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36, or, in the case of circular concrete tanks, Circular Concrete Manure Tanks, TR-9;

3) Concrete minimum compressive strength requirements must comply with the design guidance provided in Table 28 of MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36, or, in the case of circular concrete tanks, Table 1 of Circular Concrete Manure Tanks, TR-9; and

4) The strength, cover, and bending requirements for concrete reinforcement must comply with the design guidance provided in Table 1 of MidWest Plan Service Concrete Manure Storages Handbook, MWPS-36, or, in the case of circular concrete tanks, Circular Concrete Manure Tanks, TR-9.

b) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.307 Additional Earthen Material Design and Construction Standards

a) In addition to the requirements in Section 506.304, the design and construction of earthen components of livestock waste handling facilities must meet the following requirements:

1) The construction and compaction of the earthen component must be carried out to reduce void spaces and allow the earthen component to support the loadings imposed by the livestock waste without settling;

2) The minimum top width of any berm incorporated into the design of any earthen component must be 8 feet; and

3) Walls incorporated into the design of an earthen component must have side slopes not steeper than a 2.5 to 1 ratio of horizontal to vertical.

b) The floor of enclosed deep-bedded livestock systems and poultry litter systems that handle waste in dry or solid form, and use an earthen base must be constructed to achieve a hydraulic conductivity of equal to or less than 1×10^{-6} centimeters per second.

c) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.308 Additional Synthetic Material Design and Construction Standards

a) In addition to the requirements in Section 506.304, the design and construction of synthetic components of livestock waste handling facilities must meet the following requirements:

1) The synthetic material must be supported by a compacted base free from sharp objects;

2) The use of field seams must be minimized. All field seams must be made according to the manufacturer's specifications and oriented in the direction subject to the least amount of stress;

3) The synthetic material must be resistant to or otherwise protected from damage from construction or operation and degradation by ultraviolet light;

4) Synthetic components must be designed for use in livestock waste handling facilities and must be installed according to the manufacturer’s specifications and guidelines;

5) The liner must be chemically compatible with the livestock waste being handled and stored and the supporting soil materials; and

6) The liner must have sufficient strength and durability to function at the site under the maximum expected loadings imposed by the waste and

equipment and stresses imposed by settlement, temperature, construction, and operation.

b) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.309 Additional Wooden Material Design and Construction Standards

a) In addition to the requirements in Section 506.304, the design and construction of wooden components of livestock waste handling facilities must meet the following requirements:

1) Wooden materials must be naturally resistant or treated to resist damage from decay and corrosion; and

2) Construction fasteners must be resistant to corrosion.

b) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.310 Additional Design and Construction Standards for Construction in an Area with Shallow Aquifer Material

a) In addition to the other requirements of this Subpart, if aquifer material is located above or within 5 feet of the lowest point of the proposed livestock waste handling facility as determined under Section 506.302, the design and construction of the facility must comply with this Section.

b) Livestock waste handling facility components constructed of concrete must ensure that concrete footings extend below the maximum frost depth.

c) Livestock waste handling facility components constructed of earthen materials must include the installation of an earthen or synthetic liner.

1) Earthen liners must meet the following requirements:

A) The liner must consist of in-situ soil, borrowed clay, or clay/bentonite mixtures;

B) The minimum liner thickness must be 2 feet;

C) The liner must be constructed in lifts not to exceed 6 inches in compacted thickness; and

D) The construction and compaction of the liner must be carried out to reduce void spaces and allow the liner to support the loadings imposed by the waste disposal operation without settling.

2) Synthetic liners must meet the design and construction requirements in Section 506.308 and must have a minimum thickness of 40 mil.

3) The design, construction, and installation of the liner required under this Section must be conducted under the direction of a Licensed Professional Engineer. Upon completion of construction or installation of the liner, the supervising Licensed Professional Engineer must certify that the liner meets all the applicable requirements of this Section. Such certification must include all supporting justification and data.

4) The owner or operator of the livestock waste handling facility must submit to the Department a copy of the Licensed Professional Engineer's liner certification before placing the livestock waste handling facility in service in compliance with 8 Ill. Adm. Code 900.506(a).

d) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.311 Additional Design and Construction Standards for Construction in a Flood Fringe Area

No new non-lagoon livestock management facility or livestock waste handling facility may be constructed within the floodway of a 100-year floodplain. A new livestock management facility or livestock waste handling facility may be constructed within the portion of a 100-year floodplain that is within the flood fringe and outside the floodway if *the facility is designed and constructed to be protected from flooding and meets the requirements set forth in the Rivers, Lakes, and Streams Act* [615 ILCS 5]*, Section 5-40001 of the Counties Code* [55 ILCS 5/5-40001]*, and executive order number 4 (1979).* [510 ILCS 77/13(b)(1)] Despite the other

requirements of this Subpart or 8 Ill. Adm. Code 900, the following criteria must be incorporated into the design of a non-lagoon livestock management facility or livestock waste handling facility proposed for construction in the flood fringe of a 100-year floodplain:

a) The berms and walls must be designed and constructed to withstand the hydrostatic pressures from flood waters that may be exerted on the berms and walls during a flood event;

b) The elevation of the lowest point on the berm top and wall must be at the elevation of the 100-year flood plus a minimum of two feet;

c) For facilities with unequal length and width dimensions, the facility must be oriented with the longest dimension parallel to the expected direction of floodwater flow; and

d) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.312 Additional Design and Construction Standards for Construction in a Karst Area

a) *A new non-lagoon livestock waste handling facility constructed in a karst area* must *be designed to prevent seepage of the stored material into groundwater in accordance with ASAE EP393.2. Owners or operators of proposed facilities should consult with the local soil and water conservation district, the University of Illinois cooperative extension service, or other local, county, or state resources relative to determining the possible presence or absence of such areas*. [510 ILCS 77/13(b)(2)]

b) Any livestock waste handling facility constructed in a karst area must be designed and constructed utilizing a rigid material such as concrete or steel.

c) The owner or operator of the livestock waste handling facility may, upon written request and with written approval from the Department, modify or exceed these standards to meet site specific objectives. The owner or operator must demonstrate that such modification will be at least as protective of the groundwater, the surface water, and the structural integrity of the livestock waste handling facility as the requirements of this Part.

(Source: Amended at 48 Ill. Reg. 3274, effective February 15, 2024)

Section 506.313 Plan Updates (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.314 Penalties (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

SUBPART D: CERTIFIED LIVESTOCK MANAGER

Section 506.401 Applicability (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

SUBPART E: PENALTIES

Section 506.501 General (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

SUBPART F: FINANCIAL RESPONSIBILITY

Section 506.601 Scope, Applicability, and Definitions (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.602 Mechanisms for Providing Evidence of Financial Responsibility (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.603 Level of Surety (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.604 Upgrading Surety Instrument (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.605 Release of Lagoon Owner and Financial Institution (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.606 Financial Responsibility Proceeds (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.607 Use of Multiple Surety Instruments (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.608 Use of a Single Surety Instrument for Multiple Lagoons (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.610 Commercial or Private Insurance (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.611 Guarantee (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.612 Surety Bond (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.613 Letter of Credit (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.614 Certificate of Deposit or Designated Savings Account (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.615 Participation in a Livestock Waste Lagoon Closure Fund (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.620 Penalties (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

SUBPART G: SETBACKS

Section 506.701 Applicability (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.702 Procedures (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.703 Initial Determination of Setbacks (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.704 Penalties (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.Appendix A Surety Instruments (Repealed)

Section 506.Illustration A Surety Bond (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)

Section 506.Illustration B Irrevocable Standby Letter of Credit (Repealed)

(Source: Repealed at 25 Ill. Reg. 14883, effective November 15, 2001)