

## **ENVIRONMENTAL ASSESSMENT WORKSHEET**

### **Alternative Form for Animal Feedlots**

**Note to preparers:** This form is authorized for the preparation of Environmental Assessment Worksheets (EAWs) for **animal feedlots**. Project proposers should consult the Pollution Control Agency's *Guidelines for Alternative EAW Form for Animal Feedlots* at <https://www.eqb.state.mn.us/guidelines-alternative-eaw-form-animal-feedlots>.

**Note to reviewers:** The Alternative EAW Form for Animal Feedlots provides information about a **feedlot** project that may have the potential for significant environmental effects. **The project proposer may supply reasonably accessible data but does not complete the final worksheet. The final EAW is** prepared by the Minnesota Pollution Control Agency (MPCA) **Environmental Review Unit**, acting as the Responsible Governmental Unit (RGU). The EAW determines whether an Environmental Impact Statement (EIS) should be prepared. Comments on this EAW must be submitted to the MPCA during the 30-day comment period which begins with notice of the availability of the EAW in the [EQB Monitor](#), found at <https://mpca.commentinput.com/comment/search>. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Feedlot Project Title:** **MPCA Tempo AI #:**
  
2. **Feedlot Proposer:**  
Landowner, Leasee, or other title  
Address, Email, Phone
  
- 2a. **Technical Contact / Contractor:**  
Title  
Address, Email, Phone
  
3. **RGU:**  
Contact:  
Title  
Address, Email, Phone
  
4. **Reason for EAW Preparation: (check one)**  
Required: Discretionary  
 EIS Scoping  Citizen petition  
 Mandatory EAW  RGU discretion  
 Proposer initiated

**If EAW is mandatory, does it apply to Subpart A or B?**

<b>Select A or B (X)</b>	<b>MN Rule 4410.4300 Subp. 29 – Animal Feedlots.</b> The PCA is the RGU for the types of projects listed in items A and B unless the county will issue the feedlot permit, in which case the county is the RGU. However, the county is not the RGU prior to January 1, 2001.
<b>A.</b>	For the construction of an animal feedlot facility with a capacity of 1,000 animal units or more or the expansion of an existing facility by 1,000 animal units or more if the facility is not in an area listed in item B.
<b>B.</b>	For the construction of an animal feedlot facility of more than 500 animal units or expansion of an existing animal feedlot facility by more than 500 animal units if the facility is located wholly or partially in any of the following sensitive locations: shoreland; a delineated flood plain, except that in the flood plain of the Red River of the North the sensitive area includes only land within 1,000 feet of the ordinary high water mark; a state or federally designated wild and scenic river district; the Minnesota River Project Riverbend area; the Mississippi headwaters area; or an area within a drinking water supply management area delineated under chapter 4720 where the aquifer is identified in the wellhead protection plan as vulnerable to contamination; or within 1,000 feet of a known sinkhole, cave, resurgent spring, disappearing spring, Karst window, blind valley, or dry valley.

**5. Project Location:**

- Counties:
- Governing Cities or Townships:
- PLS Locations (¼, ¼, Section, Township, Range):
- Watersheds (81 major watershed scale, HUC 8):
- GPS Coordinates:
- Tax Parcel Numbers:

**At a minimum, attach each of the following to the EAW:**

- County map showing the general location of the project
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries
- Site plan showing all significant project and natural features. [Pre-construction site plan and post-construction site plan.](#)
- Map of manure application sites
- Map of permanent manure stockpiles
- Map showing all wells, tile inlets, residences, and sensitive receptors within a **1.5 mile** radius of the feedlot **and/or** manure land application **sites**
- Feedlot Permit Application (county or state)
- **Tribal boundaries within 10 miles**
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. Climate Adaptation and Resilience).

**6. Project Description**

**a.** Provide the brief project summary to be published in the *EQB Monitor* (approximately 50 words).

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize:

- 1) Purpose of project
- 2) Construction, operation methods, and features that will cause physical manipulation of the environment or will produce wastes,
- 3) Modifications to existing equipment or industrial processes,
- 4) Significant demolition, removal, or remodeling of existing structures; and
- 5) Timing and duration of construction activities

Facility components (show on site map)	Existing or Proposed?	Quantity	Total Area (sq ft)/Volume (gal)
<b>Animal Holding Areas</b>			
• Total Confinement Barns			
• Partial Confinement Barns			
• Open Lots			
• Individual Animal Housing Areas			
<b>Manure Storage Areas</b>			
• Liquid Manure Storage Areas			
• Solid Manure Storage Areas			
<b>Other Components</b>			
• Feed Storage Areas			
• Mortality Management Areas			
• Composting Sites			
• Anerobic Digester			
• Pipelines			
• Other			

**c. Animal information**

Animal Type	Number Existing	Animal Units <sup>a</sup> Existing	Number after project	Animal Units <sup>a</sup> after project
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				

TOTAL					
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<sup>a</sup> An “animal unit” or “AU” is a unit of measure developed to compare the differences in the amount of manure produced by livestock species. The “AU” is standardized to the amount of manure produced on a regular basis by a slaughter steer or heifer, which also correlates to 1,000 pounds of body weight. The “AU” is used for administrative purposes by various governmental entities for permitting and record-keeping.

**d. Manure Information**

**Annual Manure Generation**

Animal Type	Existing Annual Generation		After Project Annual Generation	
	Liquid (gal)	Solid (ton)	Liquid (gal)	Solid (ton)
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
<b>TOTAL</b>				

**Storage**

Check any of the items below that are part of the manure management system proposed for this feedlot.

- Stockpiling
- Liquid storage under barns
- Liquid storage outside of barns
- Dry manure / litter pack
- Dry manure/litter under barn storage
- Manure Composting system
- Anaerobic Digestion
- Manure Solids Separation

**Capacity**

Manure storage capacity		<input type="checkbox"/> Months	<input type="checkbox"/> Days
Acres of land <b>available</b> for manure application			
Acres of land <b>needed</b> for manure application			

e. Are future stages of this development including development on any other property planned or likely to happen?

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

f. Is this project a subsequent stage of an earlier project?

If yes, briefly describe the past development, timeline and any past environmental review.

**\*\*NOTE TO REVIEWERS\*\***

Green – new GHG and Climate Change language

Blue – language & formatting from standard EAW (unless a [hyperlink](#))

Red – staff edits, housekeeping, improvements

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## 7. Climate Adaptation and Resilience

### a. Climate Trends.

Describe the climate trends in the general location of the project and how climate change is anticipated to affect that location during the life of the project. Refer to [Feedlot EAW Guidance](#) to find resources on climate trends and projections, and to specify how each climate trend interacts with the Project Location.

<b>State of Minnesota</b> Climate Trends (data driven) & Projected Climate Change (model driven)	<b>County / Local Trends</b>	<b>Anticipated affects to Project Location</b> Address Anticipated Climate Change Hazards: storm intensity, flooding, extreme heat, drought, and wildfire
<b>Climate Trends</b>		
Increasing Temperature <b>Average annual temperature increasing</b>		
Increasing Precipitation <b>Average annual precipitation increasing</b>		
Increasing Temperature <b>Winter minimums increasing</b>		
Increasing Temperature <b>Nighttime temperatures increasing</b>		
Increasing Precipitation <b>Extreme events increasing</b>		
<b>Projected Climate Change</b>		
Projected climate change: <b>Increasing risk of heat waves</b>		
Projected climate change: <b>Increasing risk of drought</b>		

**b. Project Interaction with Climate Trends.**

For each Resource Category in the table below (Project Design, Land Use, Contamination/Hazardous Materials/Wastes): Describe how the project’s proposed activities and how the project’s design will **affect** the described climate trends and projections, described in 7a. Describe proposed adaptations to address the climate change risks and vulnerabilities identified.

Proposed activities identified under the **Feedlot Project Information** include all the new (or removed) elements of this project that could be affected by the climate trends, including elements of the site design and the processes/activities happening at the site. List proposed activities and describe how these activities will interact with each climate trend. See Examples in [Feedlot EAW Guidance](#) and [Section 3 of the EQB Climate Guidance](#).

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Resource Category	Climate Trends & Climate Projections	Feedlot Project Information: Components of Proposed Activities	Potential Environmental Impacts: Address <i>Anticipated Climate Change Hazards</i> : storm intensity, flooding, extreme heat, drought, and wildfire	Adaptation Strategies: Address applicable timeframe - construction, near-term, long-term
<b>Project Design</b>  <b>Land Use</b>  <b>Contamination/ Hazardous Materials/ Wastes</b>	<ul style="list-style-type: none"> <li>• Average Temperature Increasing</li> <li>• Winter Minimum Temperature Increasing</li> <li>• Nighttime Temperature Increasing</li> <li>• Average Annual Precipitation Increasing</li> <li>• Extreme Precipitation Events Increasing</li> <li>• Projection: Increasing risk of heat waves</li> <li>• Projection: Increasing risk of drought</li> </ul>			
<b>Water Resources</b>	<i>Address in Item 12</i>			
<b>Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (rare features)</b>	<i>Address in Item 14</i>			



**8. Cover types:** Estimate the acreage of the site with each of the following cover types before and after development:

Cover Types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)		
Deep lakes (>2 meters deep)		
Wooded/forest		
Rivers and streams		
Brush/Grassland		
Cropland		
Livestock rangeland/pastureland		
Lawn/landscaping		
<u>Green infrastructure TOTAL (from table below*)</u>		
Impervious surface		
Stormwater Pond (wet sedimentation basin)		
Other (describe)		
TOTAL		

<u>Green Infrastructure*</u>	<u>Before (acreage)</u>	<u>After (acreage)</u>
<u>Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)</u>		
<u>Constructed tree trenches and tree boxes</u>		
<u>Constructed wetlands</u>		
<u>Constructed green roofs</u>		
<u>Constructed permeable pavements</u>		
<u>Other (describe)</u>		
<u>TOTAL*</u>		

<u>Trees</u>	<u>Percent</u>	<u>Number</u>
<u>Percent tree canopy removed or number of mature trees removed during development</u>		
<u>Number of new trees planted</u>		

**9. Permits and approvals required.** List all known local, state, and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental review of

plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure. **All of these final decisions are prohibited until all appropriate environmental review has been completed.** See Minnesota Rules, Chapter 4410.3100.

Unit of Government	Application Status		
	Planned	Submitted	Not required
<b>MPCA</b>			
• Feedlot Permit - NPDES <sup>a</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Feedlot Permit – SDS <sup>b</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Feedlot Permit - Construction Stormwater Permit <sup>c</sup>			
• Solid Waste (Anaerobic Digester) <sup>d</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>DNR</b>			
Water Appropriations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Waters Work Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Permit to Take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Local Government</b>			
Conditional Use Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Other (specify regulatory unit)</b>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>a</sup> A National Pollutant Discharge Elimination System (NPDES) permit is required for any facility that currently has capacity, or is proposing to have capacity that meets or exceeds any one of the federal large confined animal feeding operation (CAFO) thresholds and discharges to waters of the United States

<sup>b</sup> A State Disposal System (SDS) permit is required for any facility that currently has capacity, or is proposing to have capacity, for a total of 1,000 or more animal units (AU). A facility that is required to obtain an SDS permit may choose to obtain an NPDES permit in lieu of the SDS permit

<sup>c</sup> Feedlots only need to apply for a construction stormwater permit when both of the following apply; the feedlot has not applied for a NPDES feedlot permit and 5 acres or more will be disturbed during construction.

<sup>d</sup> Permit category is dependent on feedstock type.

Cumulative potential effects may be considered and addressed in response to individual EAW Item No. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No. 22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

**10. Land uses**

a. Describe

- i. Existing uses of the site as well as adjacent lands to and near the site, and give the distances and directions to nearby residences, schools, daycare facilities, senior citizen housing, places of worship, open space, cemeteries, trails, prime or unique farmlands, tribal lands, culturally significant sites, and other places accessible to the public (including roads) within one mile of the feedlot and within or

adjacent to the boundaries of the manure application sites. **Identify existing registered feedlots within five miles.**

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc. **Note: If project is within 10 miles of tribal lands, reach out to respective tribal nations in consideration of this section.**

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

b. Discuss the project’s compatibility with nearby land uses, county zoning, tribal nation(s), and plans listed in Item 9a above, concentrating on implications for environmental effects.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

**11. Geology, soils and topography / land forms**

**a. Geology** - Describe the geology of the underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

<b>Geologic Features of Special Concern</b>	<b>Project site</b>	<b>Manure Application Sites</b>
Unconfined or shallow aquifer?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 50 ft of soil cover over karst-identified bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 40 inches of soil cover over karst-identified bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Karst features <sup>a</sup> within 300 ft?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

<sup>a</sup> Karst features include sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys

**b. Soils and topography** - Describe the soils on the site, giving NRCS classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures.

Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12, b.ii.

**Soils information for the land application sites will be addressed in Item 12. v (d).**

**Soil Classification and Location**

NRCS Soil	Feedlot	Manure Storage Area	Manure Application Sites
Classifications			

**12. Water resources**

a. Describe surface water and groundwater features on or near the feedlot project site and manure application areas in a.i. and a.ii. below and on attached maps.

i. **Surface water** - lakes, streams, wetlands, intermittent streams, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s) if any.

ii. **Groundwater** – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) if a project is within a federal wellhead protection areas or drinking water supply management areas found near/within tribal boundaries; 4) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this; 5) identify groundwater pollution susceptibility due to geology, unsealed wells, nearby contaminants, etc.

Indicate **Yes or No** whether any of the following **geologic site hazards to groundwater** are present at the feedlot project site, manure storage area, or manure application sites.

	Feedlot	Manure Storage Area	Manure Application Sites
Karst features (sinkhole, cave, resurgent spring, disappearing spring, karst window, blind valley, or dry valley)			
Exposed or highly fractured bedrock			
Soils developed in bedrock (as shown on soils maps)			
Sandy Soils and/or Sand Plain			
Other identified geologic hazards			

For any identified geologic hazards to groundwater, describe the features, show them on a map, and discuss proposed design and mitigation measures to avoid or minimize potential impacts.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

**i. Wastewater**

All sewage produced in Minnesota must be disposed of in accordance with Minn. R 7080.2450 subp.

6. For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

- 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.
- 2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.
- 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

**ii. Stormwater**

Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

**iii. Water appropriation**

Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the water source, quantity (amount per animal per day), duration, use and purpose of the water use and if a DNR water appropriation permit is required and has been obtained. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used

as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

**Water Use & Supply**

Current Water Use (gal/yr)		<input type="checkbox"/> Not applicable
Proposed Water Use (gal/yr)		<input type="checkbox"/> Not applicable

List all sources of surface water sources for water appropriations:

Type of surface water source*	Volume	Location	Maximum Pumping Rate

\*Existing well, public supply, new well, other water source

- Aquifer Test required by the DNR?
- Yes
  - Option Waived
  - Unknown

**iv. Surface Waters**

**a) Wetlands** - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

**b) Other surface waters**- Describe and show on maps any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent **streams**, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal, riparian alteration, **drain tiling, and tile inlets or outlets**. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project

may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Identify water resources affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the Public Waters Inventory (PWI). Describe proposed mitigation measures to avoid or minimize impacts.

**v. Manure management.** Give a brief description of how manure will be collected, stored, and applied. Include a description of any manure processing activities such as liquid solid separation and anaerobic digestion. Attach copy of Manure Management Plan (MMP). If an anaerobic digester will process manure, list any other feedstocks used in the digester.

**a) Manure removal activities.**

Manure removal frequency:  Once per year  Twice per year  
 Other: \_\_\_\_\_

Time required for manure removal: \_\_\_\_\_ Days/year

Time required for agitation of liquid manure storage areas: \_\_\_\_\_ Days/year  Not applicable

**b) Manure Transfer**

Will any amount of manure be transferred to a third party for land application or anaerobic digester?

- No – skip 1-3
- Yes, Land Application – Complete 1-3  Yes, Anaerobic Digester - Complete 1, 4-5

1) Estimated amount of manure transferred throughout the year

Transfer timeframe	Liquid (gal)	Solid (ton)
June - September		
October 1 – October 14		
October 15 – November 30		
December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
TOTAL		

2) Describe the protocols used to ensure information about nutrient content, nitrogen and phosphorus rate requirements, and setback requirements are made available to the recipient(s).

- 3) Describe any efforts to limit the potential for application of transferred manure to fields without actively growing crops during the summer and early fall (before Oct. 15) and during frozen or snow-covered conditions.
- 4) Describe any efforts to limit dust and odor to nearby residences and the amount and speed of transfer trucks.
- 5) Describe time of day and scope of operations needed to transfer manure.

**c) Manure Land Application (non-transfer)**

Will any amount of manure be applied to fields owned, leased, rented, or otherwise controlled by any member of the ownership entity of the feedlot?

Yes – complete 1-5 below     No – skip 1-5 below

1) Estimated amount of manure applied throughout the year

<b>Application timeframe</b>	<b>Liquid (gal)</b>	<b>Solid (ton)</b>
June - September		
October 1 – October 14		
October 15 – November 30		
December 1 – February 28		
March 1 – March 31		
April 1 – May 31		
<b>TOTAL</b>		

Describe anticipated manure application technologies and methods of application and incorporation. Include measures to limit potential for runoff, especially for manure applied in winter conditions.

- 2) Describe any measures used to manage field soil phosphorous levels to prevent excessive phosphorus build-up.
- 3) Describe any measures (BMPs) used to limit potential for nitrate impacts to water resources.
- 4) If land application acres drain to a waterbody with an impairment, describe the measures used to limit land application effects on the impairment.

**d) Manure application fields**

1) General description

Describe each land application field. Include in the description the following:

Field name/ID, location (Township-Range-Section), tillable acres, predominate soil type, field tiling system, irrigation system, description of bordering lands/roads, waters (within 2 miles) receiving runoff or tile line flow.

2) Map the manure application fields. Show on a map the following within or **near (300 ft)** land application fields:

Lakes, rivers, streams, intermittent streams, wetlands, county/judicial ditches, open tile intakes, wells, springs, Karst features (*Sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys*). [Include DNR Public Waters Inventory numbers](#)



(if available) and any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water.

3) Additional field sensitivity information. Below each of the following items list any fields that meet the criteria described.

- a. Fields within Drinking water supply management areas (DWSMAs) or Source Water Protection Areas (SWPAs) with medium to high vulnerability, including tribal drinking water supply areas.
- b. Fields planned for winter manure applications.
- c. Fields with soil phosphorous tests levels above 21 ppm Bray 1 or 16 ppm Olson and have surface water within 300 feet.
- d. Fields with soil phosphorous tests levels above 75 ppm Bray 1 or 60 ppm Olson.
- e. Fields that could receive broadcast manure (not immediately incorporated) that have slopes at 6% or greater.

4) Using Web Soil Survey data, list any fields with at least 33% of the acreage that meets the following:

- a. sensitive aquifer assessment rating
- b. soil texture of sand, loamy sand, loamy coarse sand, fine sand, loamy fine sand, coarse sand, or very fine sand.
  - i. depth to bedrock of 40 inches or less
  - ii. soil erosion (“T factor”) rating of 5 or more tons/acre/year
  - iii. frequently flooded

**e) Manure application setbacks**

Describe any required setbacks for land application systems.

**f) Other methods of manure utilization.**

If the project will utilize manure other than by land application, please describe the methods.

**g) Dead Animal Disposal.**

Describe the quantities of dead animals anticipated, the method for storing and disposing of carcasses, and frequency of disposal. **How will nuisance wildlife be managed that are attracted by carcasses? What is the response to a major disease or death event? Identify local ordinance restrictions for animal disposal, composting, etc.**

**13. Contamination/Hazardous Materials/Wastes**

- A. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that

would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

- B. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.
- C. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that ~~used by~~ the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.
- D. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

**14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)**

- A. Describe fish and wildlife resources as well as habitats and vegetation on or near the site.
- B. Describe rare features such as state-listed (endangered, threatened, and species of special concern) and federally listed (endangered and threatened- ) species, native plant communities, Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-\_\_\_\_) and/or correspondence number (-Minnesota Conservation Explorer (MCE) Project ID \_\_\_\_\_) from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Federal species should be queried utilizing the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) website. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.
- C. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss potential impacts to identified state and federally listed species, and any avoidance or mitigation measures that will be taken to avoid or minimize these impacts
- D. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources, such as calcareous

fens. Separately discuss measures to avoid, minimize, or mitigate the adverse effects to state and federally listed species.

### **15. Cultural Resources**

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, 3) architectural features, 4) Tribal connections to the site.

Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

### **16. Visual**

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

### **17. Air**

Identify the major sources of air or odor emissions from this feedlot.

a. Stationary source emissions - Describe the type, sources, quantities, and compositions of any emissions from stationary sources. Include any hazardous air pollutants and criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions. Describe any proposed feedlot design features or air or odor emission mitigation measures to be implemented to avoid or minimize potential adverse impacts and discuss their anticipated effectiveness.

*If no feedlot design features or mitigations were proposed, provide a summary of the results of an air emissions modeling study designed to compare predicted emissions at the property boundaries with state standards, health risk values, or odor threshold concentrations. The modeling must incorporate an appropriate background concentration for hydrogen sulfide to account for potential cumulative air quality impacts.*

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

d. Describe any plans to notify neighbors of operational events (such as manure storage agitation and pump out) that may result in higher-than-usual levels of air or odor emissions.

### **18. Greenhouse Gas (GHG) Emissions/Carbon Footprint**

- A. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation. **Utilize the Feedlot Greenhouse Gas Emissions Calculator, found at (insert reference location).**

The following tables are examples; other layouts are acceptable for providing GHG quantification results.

**Construction Emissions**

Scope	Type of Emission	Emission Sub-type	Project-related CO <sub>2</sub> e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment		
Scope 1	Land Use	Conversion		
Scope 1	Land Use	Carbon Sink		
TOTAL				

**Operational Emissions**

Scope	Type of Emission	Emission Sub-type	Existing facility CO <sub>2</sub> e Emissions (tons/year)	Project related CO <sub>2</sub> e Emissions (tons/year)	Total CO <sub>2</sub> e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment				
Scope 1	Combustion	Stationary Equipment				
Scope 1	Combustion	Area				
Scope 1	Non-Combustion	Stationary Equipment				
Scope 1	Land Use	Carbon Sink				
Scope 2	Off-site Electricity	Grid-based				
Scope 2	Off-site Steam Production	Not applicable				
Scope 3	Off-site Waste Management	Area				
TOTAL						

**B. GHG Assessment**

- i. Describe any mitigation considered to reduce the project’s GHG emissions.
- ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project’s GHG emissions. Explain why the selected mitigation was preferred.
- iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

**19. Noise**

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures taken to minimize or mitigate the effects of noise.

**20. Transportation**

A. Describe traffic-related aspects of project construction and operation. Include:

- 1) existing and proposed additional parking spaces,
- 2) estimated total average daily traffic generated,
  - a. Estimate the number of heavy truck trips generated per week and describes their routing over local roads. Describe any road improvements to be made.
  - b. Identify manure application routes and crossings, type of hauling equipment, impacts to road surface, impacts to traffic. Identify use and road crossings of drag hoses.
- 3) estimated maximum peak hour traffic generated and time of occurrence,
- 4) indicate source of trip generation rates used in the estimates, and
- 5) availability of transit and/or other alternative transportation modes.

B. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project’s impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.*

C. Identify measures that will be taken to minimize or mitigate project related transportation effects.

D. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project?  Yes  No

If yes, please describe.

**21. Cumulative potential effects**

Cumulative potential effects may be considered and addressed in response to individual EAW Item No.10-20.

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.
- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.
- c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

**22. Other potential environmental effects**

If the project may cause any additional environmental effects not addressed by items 1 to 20, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

**RGU CERTIFICATION**

**I hereby certify that:**

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as “phased actions,” pursuant to Minn. R. 4410.0200, subp. 60, 4410.1000, subp. 4, and 4410.4300, subp. 1.
- Copies of this EAW are being sent to the entire EQB distribution list.

**Name and Title of Signer:**

\_\_\_\_\_  
Signature

**Date:**

\_\_\_\_\_

*The format for the alternative Environmental Assessment Worksheet form has been approved by the Chair of the Environmental Quality Board pursuant to Minn. R. 4410.1300 for use for animal feedlot projects. For additional information contact: Environmental Quality Board, 520 Lafayette Road, St. Paul, Minnesota, 55155-4194, 651-296-6300, or at their website <https://www.eqb.state.mn.us/content/environmental-review-program>*