



# AEM Tier 2 Worksheet

## Livestock Heavy Use Areas (HUAs)

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### Glossary

**Livestock Heavy Use Area (HUA):** Areas where animals are concentrated, including those that are paved, un-vegetated or result in overgrazed or denuded soil conditions. Also called barnyards, holding areas, sacrifice areas, confinement areas, calf hutch areas, feedlots and winter paddocks.

**Vegetated Flow Distance:** The length runoff water can flow over a vegetated surface to a waterbody, excluding any length water flows over a non-vegetated surface.

**Vegetated Treatment Area (VTA):** An area of grass sod, meeting NRCS Standard NY-635, for removing sediment, organic matter, nutrients and other pollutants from HUA runoff or wastewater.

**Waterbody:** A lake, reservoir, pond, river, continuously-flowing stream, continuously-flowing spring, wetland, estuary or bay.

**Watercourse:** Water flowing over a non-vegetated channel to a waterbody.

### Background

Livestock waste contains high levels of nitrogen, phosphorus, sediments, degradable organic materials and microbes. When livestock waste is concentrated, as it is in barnyards, holding areas, calf hutch areas or feedlots, the danger of pollutants reaching surface water or groundwater increases. Odors from poorly-designed and managed HUAs can also be a cause of problems with neighbors. In addition, wet, manure and mud-laden HUAs can lead to animal health problems.

In general, good HUA management involves three basic principles:

1. Minimize pollutant source (i.e. reduce size and/or reduce the time on the HUA and/or clean often)
2. Divert clean runoff from roofs and the upslope land area away from the HUA
3. Catch and treat contaminated runoff

There is a greater chance of livestock waste affecting surface water if the HUA is located close to a down-slope watercourse or waterbody.

There is a greater risk of the HUA affecting groundwater if:

- the HUA is located over coarse-textured, permeable soils (sand and gravel);
- the water table is at or near the soil surface;
- bedrock is within a few feet of the soil surface;
- polluted runoff from the HUA flows directly onto permeable soil or bedrock;
- the HUA has been abandoned and manure remains.

### AEM Principle:

Livestock heavy use areas should be managed in ways to improve water quality, reduce odors and contribute to a healthy environment for livestock.

AEM Tier 2 Worksheet: HUAs					Potential Concern					
Factors Needing Assessment		Lower 1		2		3		Higher 4		
What is the Vegetated flow distance from the HUA to the nearest watercourse?		Greater than 300 ft.		Between 200 and 300 ft.		Between 100 and 200 ft.		Less than 100 ft.		
What is the characteristic of the vegetation cover that surface water flows through?		Permanent heavy grass sod.		Rotation with continuous cover or woodland.		Row crop growing or with at least 30% residue.		Abused pasture, bare ground, or concentrated flow path.		
What is the farmer's main objective for the HUA? (i.e. heat detection, exercise, fresh air, etc.)										
What is the square footage of the HUA?										
Is the HUA sized right for the number of animals?		HUA Size Guidelines								
		Purpose	Cows 1400 lbs.	Cows 1,000 lbs.						Heifers 500 lbs.
		Holding	15/sq. ft	12/sq. ft						8/sq. ft
		Feeding	30/sq. ft	24/sq. ft						18/sq. ft
		Resting	50/sq. ft	35/sq. ft						25/sq. ft
Heat Detection & Exercise		70/sq. ft	55/sq. ft	45/sq. ft						
How long are animals on the HUA daily?										

<b>Are animals in the HUA over the winter months?</b>				
<b>AEM Tier 2 Worksheet: HUAs</b>		<b>Potential Concern</b>		
<b>Factors Needing Assessment</b>	<b>Lower 1</b>	<b>2</b>	<b>3</b>	<b>Higher 4</b>
<b>Where are wells in relation to the HUA?</b>				
<b>What are the drainage characteristics of the soil in the HUA and adjacent flow path?</b>	Somewhat poorly drained.			Excessively well drained.
<b>What is the depth to the high water table under unpaved HUAs and adjacent flow paths?</b>	Greater than 6 ft.	4 to 6 ft.	2 to 4 ft.	Less than 2 ft.
<b>What is the depth to bedrock under unpaved HUAs and adjacent flow paths?</b>	Greater than 6 ft.	4 to 6 ft.	2 to 4 ft.	Less than 2 ft.
<b>How often is the HUA cleaned?</b>				
<b>Are there curbs or push walls and are they functioning?</b>				
<b>Are the paved areas in good shape (can be scraped clean and with minimal cracks)?</b>				
<b>Is clean water (including roof water,</b>	All runoff is diverted away from the HUA. Waterers are			There is no control of water from roof tops,

<b>upslope runoff, and animal watering sources) kept separate from manure?</b>	automatic and in good repair.			upslope runoff and animal watering sources from running through the HUA.
<b>AEM Tier 2 Worksheet: HUAs</b>		<b>Potential Concern</b>		
<b>Factors Needing Assessment</b>	<b>Lower 1</b>	<b>2</b>	<b>3</b>	<b>Higher 4</b>
<b>Are there roof gutters and/or drip trenches and are they functioning?</b>				
<b>Is HUA runoff controlled?</b>	All HUA runoff is collected, held or transferred to a properly designed storage. <b>OR</b> HUA is completely covered and protected from precipitation.	Liquids from the HUA are directed to a properly-designed VTA. Solids are contained in a settling basin and removed as needed. Prescribed O&M is carried out.	Liquids are directed to a grass filter area. Minimum O&M is carried out.	Runoff from the HUA is not controlled.
<b>Is there a VTA receiving runoff from the HUA?</b>				
<b>If yes, has Nitrate Leaching Index evaluation and soil phosphorus testing been completed on the VTA?</b>				
<b>Does the HUA lead to a pasture system? Are there gates present to minimize inappropriate congregating?</b>				
Benefits to other resources can also be possible while working toward improved water quality. Taking stock of how existing and future management affect <b>soil, water, air, plants, animals, energy, greenhouse gases, people, and economics</b> can result in more effective plans and additional benefits to farms and communities both now and into the future.				
<b>Additional Comments:</b>				

AEM ID: \_\_\_\_\_ Date: \_\_\_\_\_

