

4.2-q LIVESTOCK FACILITY MANAGEMENT

Alternative Names: Stables, Corrals, Pasture, Grazing Areas

DESCRIPTION

Livestock facilities require careful management in order to protect soil and water resources, as well as prevent nuisance odor and pest issues. While few large-scale grazing operations still exist in the Lake Tahoe Region, multiple commercial riding stables as well as smaller private stables operate within the Lake Tahoe Region, often adjacent to sensitive areas such as Stream Environment Zones (SEZs). While it may not always be practical to relocate these facilities, wise management can limit the potential impacts to water resources.



APPLICABILITY

Locate barns, corrals, manure stockpiling areas, and other livestock facilities on gently sloping or flat land (5 percent slope or less) that either drains away from sensitive lands, wells, or storm drains. Facilities are not permitted within 100 feet of SEZs or the backshore, in areas subject to overland flow from upslope areas, and in areas which have less than 4 feet from the soil surface to the groundwater table at any time of the year. Location must conform to local zoning regulations including the TRPA Code of Ordinances.

Advantages

- If properly located, designed, and constructed, discharge of degraded runoff to storm drains and water bodies can be prevented.
- Proper facility management is beneficial to the health and well-being of livestock.
- Proper management minimizes problems on adjacent properties.
- Proper facility management helps avoid exposure and spread of disease vectors.

Disadvantages

- Additional resources may be required to properly manage livestock facilities.

BMP DESIGN APPROACH

Pollutant Source Control

Hydrologic Source Control

Stormwater Treatment

SCALE OF APPLICATION

All SFR and MFR < 1 acre

MFR 1-5 Acre and CICU < 5 acres

MFR and CICU > 5 acres and all WQIPs

TYPE OF APPLICATION

Temporary

Permanent

DESIGN CONSIDERATIONS

- Livestock facilities shall be located, designed, and constructed under the direction of qualified professionals. If the facility is to be served by vehicles, the site must have loading/un-loading areas that are outside of SEZs. Construct/repair trails, arenas, roads, and parking areas utilizing swales, waterbars, and culverts to drain water in a non-erosive manner. When needed, install roof gutters, down spouts, swales, culverts, or other diversions to convey clean runoff away from pastures, manure storage areas, and any other livestock areas to minimize the amount of water that must be managed. Establish and maintain buffer strips between barnyards, pastures, manure storage areas, and waterways to filter sediments and absorb nutrients in runoff.
- Equip all livestock facilities with infiltration systems designed for the 20 yr/1-hr storm event or have an area of natural vegetation on site capable of infiltrating and providing treatment of the runoff. Facility wastewater that comes in contact with manure, litter, or bedding during livestock watering, washing, cleaning; flushing pens, barns, manure pits, or other facilities; washing or spray cooling of animals; or watering for dust control shall be treated as waste water and shall be treated and infiltrated. Use bio-swales, berms and/or subsurface drains to divert contaminated runoff away from waterways and storm drains to vegetated swales, detention basins, or similar treatment BMPs.¹⁶
- Do not exceed the carrying capacity of the pasture or range as determined by a qualified range professional in consultation with the livestock operator. One-half to two acres per animal are generally recommended.
- Maintain pasture productivity by controlling the number of livestock and amount of time they spend on a pasture. For portions of the pasture which are in poor conditions (lack of woody vegetation that is successfully reproducing and growing, lack of diversity of plant species, age classes, and rooting depths, and inadequate plant cover to provide soil protection and energy dissipation during high flows), seasons of rest or seasonal deferral of grazing shall be utilized. Also maintain proper grading in pasture areas to avoid pooling water, water-logging, or the formation of mud. Remove any invasive weeds found in the pasture. Refer to Chapter 5 Vegetation and Soil Management for more details regarding invasive weeds.
- Livestock grazing shall be limited to times when firm soil conditions exist (i.e. when pasture soil is dry and plants have achieved sufficient growth to withstand grazing). Livestock grazing shall cease by October 15 of each year but may be adjusted based on annual growing conditions.
- Restrict livestock grazing and locate salt and shade and watering facilities a minimum of 35 feet away from stream channels and other sensitive areas by installing exclusionary fencing or other electronic devices to prevent access to the stream. Access to the stream channel for watering purposes shall only be at breaks in the fencing where low water crossings are installed. These crossings shall be armored with rock or other approved materials in order to protect the banks from erosion.
- Waste produced by livestock in uncovered areas shall be removed daily for composting or, prior to landfill disposal, stored in water-tight containers or sheltered stockpile areas. Configure and maintain manure storage, composting,

¹⁶Livestock and Land Program, 2007, *Livestock and Land: What are BMPs?*
<http://www.livestockandland.org/PDF/BMP%20Brochure.pdf>

or waste piles to be protected from precipitation, groundwater seepage, and surface runoff. Keep compost piles and manure piles as far away as possible from storm drains, ditches, and bodies of water. Never hose down waste to streams, ponds, lakes, or storm drains. Export manure from the Lake Tahoe Region or compost and use for revegetation by October 15 of each year.

- Livestock shall not be allowed in areas where sensitive plant species as defined in the TRPA Code of Ordinances or their habitats could be harmed, destroyed, or otherwise jeopardized. Also design range improvements so as not to interfere with migration routes of deer and other wildlife.
- Prevent chemicals from livestock health products from draining into waterways.
- Wash animals indoors or on a stabilized area which drains to the sanitary sewer or to treatment BMPs. Store all chemicals indoors or in an appropriate area that is not subject to stormwater run-on from adjacent impervious areas. Properly designed storage areas will account for leakage containment by providing secondary control systems and a permanent roof or covering.¹⁷
- Pesticides used for livestock pest control (e.g. flies) can contaminate surface as well as ground water resources. Use integrated pest management (IPM) strategies which include evaluating current pest problems, applying pesticides only when needed, and select pesticides based on consideration of their environmental impacts such as persistence, toxicity, and leaching potential.¹⁸
- Livestock feed should be stored indoors or out of the elements and in a secure location to prevent rodents or other pests from consuming or contaminating.
- All hay, cubed hay, straw, mulch and other such products used or stored on shall be certified as weed free. Crop products often contain seeds of non-native weeds that can germinate and damage the health and beauty of the Lake Tahoe Region.

INSTALLATION CONSIDERATIONS

Livestock facilities management shall conform to TRPA Code of Ordinances on Permissible Uses and Livestock Grazing. TRPA may require, at the operator's expense, confirmation of the adequacy of the grazing management plan or confirmation of compliance with the plan and the TRPA approval.

INSPECTION AND MAINTENANCE

- Remove and dispose of animal waste properly and on a daily basis.
- Detention basins, treatment lagoons, vegetated swales, or other BMPs should be operated such that the design storm volume is available for storage of runoff. Solids should be removed as soon as possible following storm events to ensure that needed solids storage volume is available for subsequent storms.¹⁹ Diversions will need periodic reshaping and should be free of trees and brush growth. Gutters and downspouts should be inspected annually and repaired when needed. Established grades for lot surfaces and conveyance channels must be maintained at all times.²⁰ Refer to Section 4.3 Stormwater Collection and Conveyance, Section 4.4 Stormwater Treatment and Section 4.1 Hydrologic Source Control for more details.

¹⁷ EPA, 2006, *National Pollution Discharge Elimination System- General Construction Site Waste Management*

¹⁸ EPA, 2008, *Agriculture Chapter Factsheet*, <http://www.epa.gov/OWOW/NPS/MMGI/agricult.html>

¹⁹ EPA, 2008, *Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Small Units)*, <http://www.epa.gov/OWOW/NPS/MMGI/Chapter2/ch2-2b2.html>

²⁰ EPA, 2008, *Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Small Units)*, <http://www.epa.gov/OWOW/NPS/MMGI/Chapter2/ch2-2b2.html>

- Incorporate simple livestock management practices such as animal vaccinations, frequent and thorough cleaning, proper diets, proper waste removal, adequate access to feed and water, appropriate space allowance, temperature and ventilation control, on-site sanitation, bio-security measures, and good animal husbandry practices to keep animals healthy and to reduce contamination to other animals, humans, and water sources.

EFFECTIVENESS CONSIDERATIONS

Attention to facility location and maintenance practices can minimize or prevent contamination of ground or surface waters from livestock operations.