

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

HEAVY USE AREA PROTECTION

(Acre)

CODE 561

CRITERIA

**DEFINITION**

The stabilization of areas frequently and intensively used by people, animals or vehicles by establishing vegetative cover, by surfacing with suitable materials, and/or by installing needed structures.

**PURPOSES**

This practice may be used as a part of a conservation management system to support one or more of the following purposes.

- Reduce soil erosion
- Improve water quantity and quality
- Improve air quality
- Improve aesthetics
- Improve livestock health

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies to urban, agricultural, recreational or other frequently and intensively used areas requiring treatment to address one or more resource concerns.

This practice applies to animal feeding operations where applied as a component of a planned waste management system.

*General Criteria Applicable to All Purposes*

All planned work shall comply with Federal, state, and local laws and regulations.

Safety of the users shall be incorporated into the design of the heavy use area protection.

**Design Load.** The design load will be based on the type of traffic, (vehicular, animal, or human) anticipated on the heavy use area. The minimum design load for areas that support vehicular traffic will be a wheel load of 4000 lbs.

**Foundation.** All site foundations shall be evaluated for soil moisture, permeability, texture and bearing strength in combination with the design load and anticipated frequency of use.

A base course of gravel, crushed stone, other suitable material and/or geotextile shall be provided on all sites with a need for increased load bearing strength, drainage, separation of material and soil reinforcement. Natural Resources Conservation Service (NRCS), National Engineering Handbook (NEH), Parts 642 and 643 (formerly, NEH, Section 20) and AASHTO M-288 (latest edition) provide guidance in quality specification and

geotextile selection.

An impervious barrier shall be provided on sites with a porous foundation (high permeability rate), where there is a need to protect ground water from contamination.

Foundation preparation shall consist of removal and disposal of soil and other material that are not adequate to support the design loads.

**Surface treatment.** The surface treatment shall meet the following criteria:

Bituminous Pavement. The thickness of the pavement course, the kind and size of aggregate, the type of proportioning of bituminous materials, and the mixing and placing of these materials shall be in accordance with Department of Transportation criteria for the expected loading.

Concrete. The quality and thickness of concrete and the spacing and size of reinforcing steel shall be appropriate for the expected loading.

Other Cementitious Materials. Soil cement, roller compacted concrete, and coal combustion by-products (flue gas desulfurization sludge and fly ash) may be used as surface material if designed and installed to withstand the anticipated loads and surface abrasion.

Aggregate. A fine or coarse aggregate surface shall be a minimum 2-inches thick.

Other. Surfacing materials, such as cinders, tanbark, bark mulch, brick chips, shredded rubber and/or sawdust, shall have a minimum layer thickness of 2 inches.

**Structures.** All structures shall be designed according to appropriate NRCS standards and specifications or Engineering Handbook recommendations.

**Sprays and artificial mulches.** When utilizing sprays of asphalt, oil, plastic,

manufactured mulches, and similar materials, the manufacturer's recommendations for application shall be incorporated into the design.

**Drainage and erosion control.** Provision shall be made for surface and subsurface drainage, as needed, and for disposal of runoff without causing erosion or water quality impairment. Provision shall be made to exclude unpolluted run-on water from the treatment area. All treatment areas shall be shaped to prevent ponding of water.

**Vegetative Measures.** Liming, fertilizing, soil preparation, seeding, mulching, sodding and vegetation management shall be according to the planned use and NRCS Conservation Practice Standard, Critical Area Planting, Code 342. If vegetation is not appropriate, other measures shall be used to accomplish the intended purpose.

#### ***Additional Criteria for Areas Utilized by Livestock***

The treated area shall extend an appropriate distance from facilities such as portable hay rings, water troughs, feeding troughs, mineral boxes and other facilities where livestock concentrations cause resource concerns.

NRCS conservation practice standards Animal Trails and Walkways, Code 575; Critical Area Planting, Code 342; Fencing, Code 382; Prescribed Grazing, Code 528A; Filter Strip, Code 393; or Use Exclusion, Code 472 shall be used as companion practices, when needed, to meet the intended purpose of the heavy use area protection.

Because of the manure deposits and buildup associated with animal feeding and

loafing areas, all Heavy Use Area Protection treatment areas utilized for these purposes shall only be planned and installed as part of an approved waste management system

Solid waste materials shall be periodically removed from the treatment area by scraping, storing, and/or land applying the solid waste materials in accordance with Conservation Practice Standards, Nutrient Management, Code (590), Waste Utilization, Code (633).

Provisions shall be made to collect, store, utilize and/or treat manure accumulations and contaminated runoff in accordance with NRCS Conservation Practice Standards, Waste Storage Facility, Code 313 or Waste Treatment Lagoon, Code 359.

**Base Treatment.** All unpaved areas shall have a minimum 6 inch base of KYDOH DGA (dense grade aggregate), #8, #610, #57, or #4 stone, or other suitable quarried stone as defined in the construction specifications. All paved areas (**concrete or asphalt**) shall have a minimum 4-inch base of KYDOH DGA; or if covered with plastic (6-mil minimum thickness), KYDOH #8, #610, or #57 stone.

**Surface Treatment.** Surface materials for treatment areas shall be a minimum compacted layer of 2 inches KYDOH #610, #57, #8, class I sand, or DGA (dense grade aggregate).

**Geotextile.** A non-woven, non-heat bonded and needle-punched geotextile fabric shall be installed under all treatment areas unless the foundation is on rock or concrete is used as the surface treatment. The fabric shall have the minimum material requirements as specified in

**Table 1 of the Heavy Use Area Construction Specifications.** Use of other geotextiles, (woven) must be approved by the engineer on a case by case basis.

**Siting Requirements.** Heavy use areas for the purpose of feeding livestock shall not be located less than 150 feet from any blue line or intermittent stream as defined by the U.S.G.S. 7.5-minute topographic quadrangle. Heavy use areas shall not be located within 150 feet of any impounded body of water, or open swallow sinkhole, as determined from onsite investigation by NRCS personnel.

***Additional Criteria for Areas Utilized for Recreation***

The treated area shall be conducive to the overall recreation area and aesthetically blend with the general landscape and surroundings.

Plants, landscaping timbers, traffic control measures, wooden walkways, etc. shall be evaluated for effectiveness, aesthetics and accessibility as covered by the Americans with Disabilities Act.

**Base Treatment.** All unpaved areas shall have a minimum 6 inch base of KYDOH DGA (dense grade aggregate), #8, #610, #57, or #4 stone, or other suitable quarried stone as defined in the construction specifications. All paved areas (**concrete or asphalt**) shall have a minimum 4-inch base of KYDOH DGA; or if covered with plastic (6-mil minimum thickness), KYDOH #8, #610, or #57 stone.

**Surface Treatment.** Surface materials for treatment areas shall be a minimum compacted layer of 2 inches KYDOH #610, #57, #8, class I sand, or DGA (dense grade aggregate).

**Geotextile.** A woven or non-woven geotextile fabric may be required under treatment areas unless the foundation is on rock. The fabric shall have the minimum

material requirements as specified in **Tables 1 and 2 of the Heavy Use Area Construction Specifications.**

### CONSIDERATIONS

When stabilizing heavily used areas consider adjoining land uses and the proximity to residences, utilities, cultural resource areas, wetlands or other environmentally sensitive areas, and areas of special scenic value.

For heavy use areas conducive to protection by vegetation, consideration must be given to the effect(s) of treading and/or miring. The vegetative species selected should tolerate and persist under heavy use conditions. If practicable, consider increasing the size of the area and/or establishing a rest/non-use period to allow plant recovery and increase vigor.

Heavy use area protection effects on the water budget, especially on volumes and rates of runoff, infiltration, and transpiration due to the installation of less pervious surfaces should be considered in the selection of surfacing materials.

The transport of sediments, nutrients, bacteria, organic matter from animal manures, oils and chemicals associated with vehicular traffic, and soluble and sediment-attached substances carried by runoff should be considered in selection of companion conservation practices.

If the purpose of the heavy use area protection is improvement of water quality, the heavy use area should be (re)located as far away from the waterbody or watercourse as possible. Any work in and/or discharges near streams, wetlands or waterbodies may require a permit from the US Army Corps of Engineers, Kentucky Department For Environmental

Protection Division of Water, or local authority.

The size of heavy use areas utilized by livestock is dependent on the landowner's operation including type and number of animal, confinement periods, and/or the intended use. The size of treatment areas can range from 30 square feet per animal in partial-confinement to 400 square feet per animal in total confinement to 4000 or more square feet for animal exercise areas. Heavy use protection areas should be kept as small as practicable.

The recommended treatment areas for loafing are as follows:

Animal <sup>1</sup>	Treatment Area / au (ft. <sup>2</sup> )	Treatment Area / animal (ft. <sup>2</sup> )
Dairy Cattle (1.4 au/cow)	50	70
Beef Cattle w/calves (1.5 au/pair)	50	75
Horses (2.0 au/horse)	35	70
Sheep (0.1 au/sheep)	50	5
<sup>1</sup> Animal unit values taken from 40 CFR Part 122 Appendix B.		

When surface treatments such as bark mulch, wood-fiber or other non-durable materials are used for short-term livestock containment areas, consideration should be given to vegetation of the affected area with a cover crop.

For areas with aggregate surfaces that will be frequently scraped, consideration should be given to the use of concrete or cementitious materials to lessen the recurring cost of aggregate replacement.

### **PLANS AND SPECIFICATIONS**

Plans and specifications for heavy use area protection shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include construction plans, drawings, job sheets or other similar documents. These documents shall specify the requirements for installing the practice, including the kind, amount and quality of materials to be used.

### **OPERATION AND MAINTENANCE**

An Operation and Maintenance (O&M) plan shall be prepared for and reviewed with the landowner or operator. The plan shall specify that the treated areas and associated practices are inspected annually and after significant storm events to identify repair and maintenance needs. The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice. For livestock operations, the O&M plan

for heavy use areas may be included as a part of the overall waste management plan. Periodic removal and management of manure accumulations will be addressed in the O&M plan.

### **REFERENCES**

1. KY Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction
2. American Concrete Institute, ACI 360
3. NRCS Conservation Practice Standards  
Animal Trails and Walkways, Code 575  
Critical Area Planting, Code 342  
Fence, Code 382  
Filter Strip, Code 393  
Prescribed Grazing, Code 528A  
Nutrient Management, Code 590,  
Waste Utilization, Code (633).
4. NRCS, NEH Part 642, Material Specification 592
5. 40 CFR, PART 122, APPENDIX B
6. General Manual, 190, Part 410, Compliance with NEPA.