NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
RHODE ISLAND

HEAVY USE AREA PROTECTION
(Acre)

CODE 561

DEFINITION

The stabilization of areas frequently and intensively used by 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 aesthetics
- Improve livestock health
- Improve H2O Quantity and Quality
- Improve Air Quality

CONDITIONS WHERE PRACTICE APPLIES

On urban, suburban, agricultural, or other frequently and intensively used areas where an assessment indicates that treatment is required to address one or more resource concerns.

On agricultural land, where the practice is a component of an approved agricultural waste management system.

CRITERIA

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 or animal) 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 six-inch (6") thick minimum base course of gravel or crushed stone and/or geotextile shall be provided on all sites with bituminous or concrete pavement and those other 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 for quality specification and geotextile selection.

An impervious barrier shall be provided on sites where there is a need to protect ground water from contamination.

Foundation preparation shall consist of removal and disposal of topsoil, organic and other materials 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 Rhode Island Department of Transportation criteria for the expected loading. The minimum thickness of bituminous concrete pavement (base course plus wearing course) shall be three (3") inches.

Concrete. Concrete pavement shall be reinforced with wire mesh or reinforcing bars. The minimum thickness of concrete pavement shall be four inches (4") underlain with a 4 mil thickness vapor barrier and five (5") inches if no barrier is installed. Exceptions for using fiber reinforcement in place of steel may be allowed on a case by case basis if loading and freeze / thaw conditions are nominal. If fiber reinforcement is used, expansion joints shall be spaced at 30 feet or less in both directions

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. When gravel or crushed stone is used alone, its total minimum thickness shall be nine (9") inches.

Other. Surfacing materials, such as cinders, tanbark, bark mulch, brick chips, shredded rubber and/or sawdust, shall have a minimum layer thickness of three (3") inches.

Structures. All structures shall be designed according to appropriate NRCS standards. 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 appropriate conservation practice standard in the local technical guide. 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 Waste Storage Facility, code 313; Critical Area Planting, Code 342; Fencing, Code 382; Prescribed Grazing, Code 528A; or Use Exclusion, Code 472 shall be used as companion practices, when needed, to meet the intended purpose of the heavy use area protection.

Provisions shall be made to collect, store, utilize and/or treat manure accumulations and contaminated runoff in accordance with NRCS conservation practice standard, Waste Management System, Code 312 and the specified waste management system plan approved for the operation.

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 if used by the public shall provide accessibility as covered by the Americans with Disabilities Act.

CONSIDERATIONS

For livestock operations, consider roofing the heavy use area to reduce contaminated runoff volume.

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.

Any work in and/or practice implementation near streams, wetlands or waterbodies may require a permit from the US Army Corps of Engineers, state water quality (permitting) authority, and / 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.

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. To the extent practical, specifications shall conform to NRCS National Engineering Handbook Parts 642 and 643 (Section 20). Regardless of their source, the design documents shall as a minimum, specify the requirements for installing the practice including the kind, amount, and quantity of materials to be used.

AS BUILT DRAWINGS

As built drawings shall be prepared showing all pertinent element and elevations as actually installed, and a copy shall be provided to the owner / operator upon construction completion.

OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan shall be prepared for, reviewed and signed by 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 shall address periodic removal and management of manure accumulations and contaminated runoff.

For livestock operations, the O&M plan shall contain a statement that the heavy use area shall not be used to house livestock, store feed, store manure, nor store or maintain machinery or equipment.