NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

ANIMAL TRAILS AND WALKWAYS

(Ft.)

CODE 575

DEFINITION

Established lanes or travel ways that facilitate animal movement.

PURPOSE

Provide or improve access to forage, water, working/handling facilities, and/or shelter,

Improve grazing efficiency and distribution, and/or

Protect ecologically sensitive, erosive and/or potentially erosive sites.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to areas where control of animal movement and/or stabilization of travel lanes or walkways is needed.

This practice does not apply to areas where livestock will be confined or held for the purpose of feeding or handling. Heavy Use Area Protection (Code 561) applies to those areas. This practice also does not apply to travel ways routinely or primarily used for vehicular traffic. Access Road (Code 560) is applicable to those areas.

CRITERIA

General Criteria Applicable to All Purposes

All planned work shall comply with all federal, state, and local laws and permit conditions and requirements. The landowner shall obtain all necessary permits prior to construction or any land clearing activities.

Animal trails or walkways shall be constructed wide enough to accommodate movement of animals and access by operator for management and maintenance. They shall be a minimum six (6) feet wide.

Trails or walkways shall be designed and constructed with consideration of site soil characteristics.

Cultural resources, threatened or endangered species, wetlands, streambanks, floodways or other ecologically sensitive areas, and areas of special scenic value will be protected through the proper design and placement of trail(s) or walkway(s).

Trails or walkways shall be constructed in such a manner that accelerated erosion will not occur. A maximum of 10% slope is allowed. For distances of 100 feet or less, 20% slopes will be allowed when drainage structures are provided according to Table 1 criteria.

Table 1

Maximum Distances Between Drainage Structures	
Walkway Slope (%)	Distance (feet)
1	400
2	250
5	125
10	80
15	50
20	30

Drainage structures such as culverts, open top culverts, and wooden, earthen, or approved water bars shall be installed to safely dispose of surface water. Spacing of the structures is listed in Table 1. All structures should convey runoff water to stable outlets at velocities that are non-erosive. Do not discharge drainage structures that convey walkway runoff directly to a stream. An appropriate filter area is required.

Construct trails or walkways with a crown or cross slope to drain water. The cross slope or crown requirements are shown in Table 2. Measure the slope perpendicular to the direction of travel.

Table 2

Minimum Crowns and Cross Slopes	
Trail Width	Slope
≤ 6.0 Ft	1.0 In/Ft
6.1 – 11.9 Ft	0.75 In/Ft
≥ 12 Ft	0.5 In/Ft

The lane or walkway shall have a minimum cross section based on soil drainage classes as contained in Table 3.

Travel lanes constructed across the slope creating a diversion shall be kept to a minimum. On poorly and somewhat poorly drained soils, construct the walkway so the settled finished grade is above the original ground so that drainage can occur (see Table 3). Side slopes above ground shall be a maximum 1½ : 1 (H:V). All earthfill and cut slopes need to be re-vegetated in accordance with Critical Area Planting, (Code 342). Where a diversion is created, convey the runoff in a stabilized swale outside the trail or walkway to a stable outlet. Design the swale to carry the 2-year storm

Conservation practice standard 578, Stream Crossing, will be used when animal trails or walkways cross streams or other shallow water bodies.

Sensitivity of the animal's feet, with respect to the intended purpose of the trail or walkway, will be included as a design parameter in selecting the surface material for trails or walkways. The type of surface treatment shall be the landowner's decision. The design of the surface treatment shall meet the requirements for practice standard Heavy Use Area Protection (Code 561).

Table 3

Trail or Walkway Cross Section		
Cross Section Option	Soil Drainage Classification*	
	Well to Moderately Well Drained	Somewhat Poorly to Poorly Drained
Compacted earth**	X	
Minimum 6" surface material over 6" base course material, MSHA Class SE Filter Fabric as needed.	X	
Minimum 6" surface material over 6" base course material over MSHA Class SE Filter Fabric		X

*Based on site specific soils investigations and information from the soil surveys.

** Compacted earth, including weathered shale, shall be used only on slopes less than 5% where the walkway runoff is directed across a pasture or a Vegetated Treatment *Area (Code 635).*

Consider the adequacy of natural surfacing. If trails or walkways are seeded or planted to vegetative cover, vegetation will be protected from grazing until fully established and capable of withstanding grazing and/or trampling. Vegetative cover shall be established in accordance with Critical Area Planting, (Code 342). Where maintaining vegetative cover is necessary but not possible, Heavy Use Area Protection, (Code 561), will be used to provide adequate surface protection.

Conservation practice standard 382, Fence, will be used when needed to keep animals confined to the trail or walkway until the desired destination is reached. The trail or walkway cross section shall extend to the inside of the fence posts.

Additional Criteria Applicable to Providing or Improving Access to Forage, Water, Working/Handling Facilities and/or Shelter

Trails and walkways will be designed and constructed of sufficient size to accommodate the expected frequency of use and animal type(s) planned for the operation.

When needed to facilitate movement of animals through a series of paddocks or pastures, gate openings and lane layouts shall allow for efficient flow of animals with the least amount of stress.

Additional Criteria Applicable to Improving Grazing Efficiency and Distribution

Fenced or unfenced animal trails or walkways will be used to distribute grazing to overcome terrain features causing uneven grazing distribution and pressure.

Materials

Personnel with appropriate NRCS engineering approval authority shall inspect all materials. Materials must conform to the material specifications. Other materials may be used as approved by the responsible engineer. Technical documentation should support the use of "other" materials.

Concrete. Concrete must meet the minimum requirements of Maryland Department of Transportation, State Highway Administration, *Standard Specifications for Construction and Materials,* Section 902, 4,000 psi, air-entrained, Type IA cement. Other mixes may be used, when design computations are completed with a slump of 3-5 inches and 5% air entrainment.

Asphalt. Asphalt shall meet the requirements of Maryland Department of Transportation, State Highway Administration, *Standard Specifications for Construction and Materials,* Section 504. Choose a mix type appropriate for the surface application.

Stone - Surface Material. Stone used for surface material must meet the requirements of Maryland Department of Transportation, State Highway Administration, *Standard Specifications for Construction and Materials,* Sections 901.01 and 901.02 respectively or appropriate AASHTO Standards. Maximum size stone shall be 100% passing the 3/8" sieve and 95% to 100% passing the No. 4 sieve.

Stone – Base Course. Gravel and rock riprap must meet the requirements of Maryland Department of Transportation, State Highway Administration, *Standard Specifications for Construction and Materials,* Sections 901.01 and 901.02 respectively or appropriate AASHTO Standards. Recycled concrete may be substituted if appropriately sized. The maximum stone size shall be 3" and the minimum size stone shall be ¾".

Geotextile. When required, geotextile may be woven or nonwoven and must meet the requirements of Maryland Department of Transportation, State Highway Administration, *Standard Specifications for Construction and Materials,* Section 921.09, Class SE.

CONSIDERATIONS

Conservation Practice Standard 528, Prescribed Grazing, can be used to further improve grazing distribution and pressure.

Other conservation practices, such as Use Exclusion, (Code 472) can be used in conjunction with trails or walkways to minimize the impact on sensitive areas.

For areas of high livestock concentration, such as around ponds, tanks, troughs, or other feeding areas, use Heavy Use Area Protection, (Code 561).

Consider limiting width to prevent usage as a roadway. For travelways used by vehicles or equipment for purposes other than management and maintenance of animal trails or walkways, use Access Road, (Code 560).

Consider the use of water bars, culverts, or other considerations to control and direct water flow.

Trail and walkway design should consider the amount of time of and frequency of livestock usage

Where a trail or walkway “outlets” to a pasture particularly at gates or narrow entrances, expand the walkway to a 30’ radius into the pasture so the animals can disperse without creating eroded areas.

Visit your local quarry and determine the appropriate surface and base material gradations. Quarries vary in what they call their various gradations and it is wise to determine the rock needed for the application prior to design.

PLANS AND SPECIFICATIONS

Plans and specifications for installing animal trails or walkways 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 location and the kind, amount, and quality of materials to be used.

OPERATION AND MAINTENANCE

The operation and maintenance (O&M) plan shall specify that the trails or walkways and associated practices be 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. These repairs should include, but are not limited to, the following:

- Inspections after storm events to determine and repair damage as needed
- Periodic grading or re-shaping trails or walkways to maintain the designed grade and dimensions,
- Periodic application of the final surface treatment material should be anticipated and is necessary to maintain a proper walking surface for the livestock. This may need to be done on an annual basis
- Re-seeding of areas in which the vegetation has been damaged or destroyed, and/or
- Mending of fences and replacement of gates.

Periodic removal and management of manure accumulations will be addressed in the O&M plan.

For multiple adjacent vegetated walkways the O&M plan should provide guidance as to the rotation of walkways to allow for recovery of vegetation and for improvement of traffic - supporting conditions.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file, as applicable:

Planning Information, Field Data, and Survey Notes

Record on survey note paper, SCS-ENG-28 & 29, or as appropriate. The following is a list of the minimum data and documentation to be recorded in the case file:

1. Field location of the project and CPA-6 assistance notes. Also note the location of the project on the conservation plan map;
2. Profile along centerline of walkway stream
3. Cross-sections as needed;
4. Sketch of area;
5. Soil investigation, if needed due to unusual site conditions;

Design Data

For guidance on the preparation of engineering plans see chapter 5 of the EFH, Part 650 and National Engineering Handbook Part 641 or Maryland Amendment Number 1. The following is a list of the minimum required design data:

1. Determine peak runoff from the contributing drainage area for the required design storm in accordance with Chapter 2, Engineering Field Handbook, Part 650 or by other approved method;
2. Determine stream channel stability using appropriate methods;
3. Construction drawing including the following: location map, plan view, profiles, cross sections, fencing when required, material and construction specifications;
4. Show job class on plan;
5. Quantities estimate;
6. Planting plan. This must meet the criteria, specifications, and documentation requirements of the Maryland conservation practice standard for Critical Area Planting, Code 342. Show on plan.

Construction Check Data/ As-Built

Record on survey notepaper, SCS-ENG-28, or as appropriate. Plot final survey data on the plans in red. The following is a list of minimum data needed for As-Builts:

1. Documentation of all site visits on CPA-6. Include the date, who performed the inspection, specifics as to what was inspected, all alternatives discussed, and decisions made and by whom;
2. Personnel with appropriate NRCS engineering approval authority shall inspect all materials. Materials must conform to the material specifications. Other materials may be used as approved by the responsible engineer. Technical documentation should support the use of “other” materials.
3. Check notes recorded during or after completion of construction showing cross sections, profiles of constructed components, lengths widths and elevations of all components;
4. Statement on seeding and fencing (when required);
5. Final quantities and documentation for quantity changes, and materials certification;
6. Sign and date plans by someone with appropriate approval authority. Include statement that practice meets or exceeds plans and NRCS practice standards.
7. An O&M plan that details the level of repairs needed to maintain the effectiveness and useful life of the practice.

REFERENCES:

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