

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

ACCESS ROAD

(Ft)
Code 560



DEFINITION

A travel-way for vehicles constructed as part of a conservation plan.

PURPOSE

To provide a fixed route for vehicular travel for resource activities involving the management of timber, livestock, agriculture, wildlife habitat, and other conservation enterprises while protecting the soil, water, air, fish, wildlife, and other adjacent natural resources.

CONDITIONS WHERE PRACTICE APPLIES

Where access is needed from a private or public road or highway to a land use enterprise or conservation measure, or where travel ways are needed in a planned land use area.

Access roads range from seldom used trails to all-weather roads heavily used by the public and built to very high standards. Some trails that facilitate control of forest fires and/or prescribed burns are used for logging, serve as access to remote areas for recreation, or are used for maintenance of facilities.

CRITERIA

General Criteria Applicable to All Purposes

Access roads shall be designed to serve the enterprise or planned use with the expected vehicular or equipment traffic. The type of vehicle or equipment, speed, loads, soil, climatic, and other conditions under which vehicles and equipment are expected to operate need to be considered. Planned work shall comply with all Federal, state and local laws, regulations and criteria.

Sound engineering practices shall be followed to ensure that the road meets the requirements of its intended use and that maintenance requirements are acceptable.

Location. Roads shall be located to serve the purpose intended, to facilitate the control and disposal of surface and subsurface water, to control or reduce erosion, to make the best use of topographic features, and to include scenic vistas where possible. The roads should generally follow natural contours and slopes to minimize disturbance of drainage patterns. Roads shall be located where they can be maintained and where water management problems are not created. To reduce potential pollution, roads shall be located away from watercourses and utilize buffers where possible to protect waterbodies.

Alignment. The gradient and horizontal alignment shall be adapted to the intensity of use, mode of travel, the type of equipment and load weights, and the level of development.

Grades normally should not exceed 10 percent except for short lengths, but maximum grades of 18 percent or more may be used if necessary for special uses such as logging roads, field access roads, fire protection roads, or other roads not intended for public access.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

For stream crossings, the road should be aligned so that it crosses perpendicular to the channel as much as possible.

Width. The minimum width of the roadbed is 14 feet for one-way traffic and 20 feet for two-way traffic. The roadbed width includes a tread-width of 10 feet for one-way traffic or 16 feet for two-way traffic. Each type of road also requires a minimum of 2 feet of shoulder width on each side. Single-lane logging or special-purpose roads can have a minimum width of 10 feet, with greater widths at curves and turnouts. The two-way traffic width shall be increased approximately 4 feet for trailer traffic. The shoulder width may be either gravel or grass.

Turnouts shall be used on single lane roads where vehicles travel in both directions on a limited basis. Where turnouts are used, road width shall be increased to a minimum of 20 feet for a distance of at least 30 feet.

Side slopes. All cuts and fills shall be designed to have stable slopes. For heights of 4 feet or less, side slopes shall be no steeper than 2 horizontal to 1 vertical (2:1). For short lengths, rock areas, or very steep hillsides, steeper slopes may be permitted, if soil conditions warrant and special stabilization measures are installed.

Areas with geological conditions and soils subject to slides shall be avoided or treated to prevent slides.

Drainage. The type of drainage structure used will depend on the intended use and runoff conditions. Culverts, bridges, fords, or grade dips for water management shall be provided at all natural drainageways. The capacity and design shall be consistent with sound engineering principles and shall be adequate for the class of vehicle, type of road, development, or use. When a culvert or bridge is installed in a drainage way, its minimum capacity shall convey the design storm runoff without causing erosion or road overtopping. Table 1 lists minimum design storm frequencies for various road types.

In situations where drainage rates dictate the design capacity of drainage ways, drainage rates may be used to design structures (culverts, bridges, etc.) provided that auxiliary spillways are installed to safely handle larger flows. The minimum drainage rate shall be as required in the Florida Drainage Guide.

Table 1 - Minimum design storm frequencies for various road types.

Road Type	Storm Frequency
Forest, Farm, and Ranch Access Roads,	2 year - 24 hour
Farm and Ranch Driveways, Recreation Facility Access Roads	10 year - 24 hour
Public Access Roads, Camp grounds, Etc.	25 year - 24 hour

An erosion resistant low point or overflow area may be constructed across the access road to supplement culvert capacity on non-public use roads. Culverts, bridges, fords and hardened overflow areas should be installed so the road crossing does not significantly impact fish or other aquatic fauna passage.

Roadside ditches shall be adequate to provide surface drainage for the roadway and deep enough, as needed to serve as outlets for subsurface drainage. At a minimum the roadside ditch shall be 1.0 foot below the top of road surface to provide internal drainage. Ditch channels shall be designed to be on stable grades or protected with structures or linings for stability.

Water-breaks or water-bars may be used to control surface runoff on low-intensity use forest, ranch or similar roads. On steep grades where runoff and erosion is anticipated down the road, water bars should be considered. Water bars must be constructed of materials that are compatible with the use and maintenance of the road surface. Water bar discharge areas must be well vegetated or have other erosion resistant materials. See Figure 1 "Recommended Spacing of Relief Culverts and Water Bars Based on Soil Type."

Surface crowning can also help direct road runoff into the side drainage ditches. Unobstructed flow into the ditches must be maintained to prevent flows from causing roadside erosion.

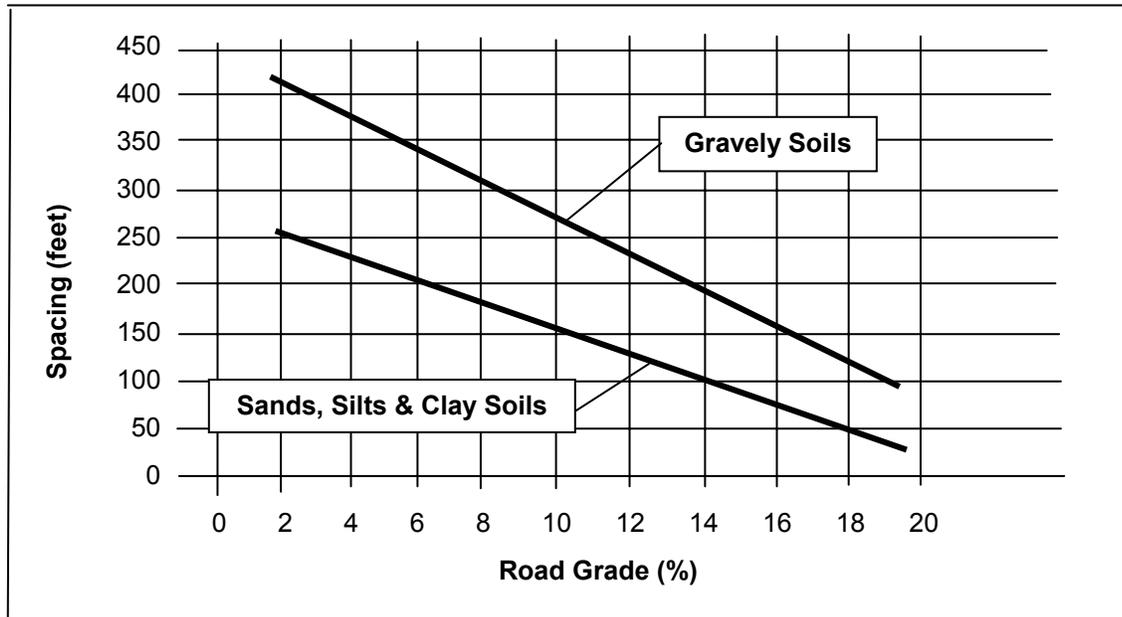
Surfacing. Access roads shall be given a wearing course or surface treatment if required by traffic needs, soil, climate, erosion control, or dust control. The type of treatment, if needed, depends on local conditions, available materials, and the existing road base. If these factors or

the volume of traffic is not a problem, no special treatment of the surface is required. On weak load bearing capacity soils such as silts, organics, and clays, the surface treatment should be underlain with a geotextile material specifically designed for road stabilization applications when the road is used on a regular basis.

Unsurfaced roads may require controlled access to prevent damage or hazardous conditions during adverse climatic conditions.

Toxic and acid-forming materials shall not be used on roads. This should not be construed to prohibit use of chemicals for dust control after considering potential impacts on stabilizing vegetation.

Figure 1 - Recommend Spacing of Relief Culverts and Water Bars Based on Soil Types



Construction Operations. Construction operations shall be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits. Construction shall include the following requirements as necessary for the job:

- Trees, stumps, roots, brush, weeds, and other objectionable material shall be removed from the work area.
- Unsuitable material shall be removed from the roadbed area.
- Grading, sub-grade preparation, and compaction shall be applied as needed.
- Surfacing shall be applied as needed.
- Measures must be in place to limit the generation of particulate matter during construction.

Traffic safety. Passing lanes, turnouts, guardrails, signs, and other facilities as needed for safe traffic flow shall be provided. Traffic safety shall be a prime factor in selecting the angle and grade of the intersection with public highways. Preferably, the angles shall be not less than 85 degrees. The public highway shall be entered either at the top of a hill or far enough from the top or a curve to provide visibility and a safe sight distance. The clear sight distance to each side shall not be less than 300 feet or as required by local regulations.

Erosion control. If soil and climatic conditions are favorable, roadbanks and disturbed areas shall be vegetated as soon as possible and skid trails, landings, logging, and similar roads shall be vegetated after harvesting or seasonal use is completed. Vegetated treatment shall be in conformance with Florida NRCS conservation practice standard Critical Area Planting, Code

342. If the use of vegetation is precluded and protection against erosion is needed, protection shall be provided by non-vegetative materials, such as gravel or other organic or inorganic material in conformance with Florida NRCS conservation practice standard Mulching, Code 484 or in accordance with local regulations.

Roadside channels, cross drains, and drainage structure inlets and outlets shall be designed to be stable and shall be in conformance with Florida NRCS conservation practice standard Structure for Water Control, Code 587. If protection is needed, riprap or other similar materials shall be used.

Watercourses and water quality shall be protected during and after construction by erosion-control facilities and maintenance. Filter strips, water and sediment control basins, and other conservation practices shall be used and maintained as needed.

CONSIDERATIONS

Provide a turnaround at the end of dead end roads. In some areas turnarounds may also be desirable for stream, lake, recreation, or other access purposes.

Provide parking space as needed to keep vehicles off the road or from being parked in undesirable locations.

Consider visual resources and environmental values during the planning and designing of the road system.

When available, consider using organic biodegradable materials as a surface treatment.

Access roads should be located where minimal adverse impacts will affect wetlands, waterbodies and wildlife habitat. Consideration should be given to the following:

- Effects on downstream flows or aquifers that would effect other water uses or users.
- Effects on the volume and timing of downstream flow to prohibit undesirable environmental, social, or economic effects.
- Short-term and construction-related effects of this practice on the quality of on-site downstream water courses.

- Overall effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that would be carried by runoff from construction activities.
- Effects on wetlands and aquatic wildlife habitats that would be associated with the practice.
- Establishing vegetation on road shoulders wider than the 2-4 feet.
- Limiting the number of vehicles and vehicle speed will reduce the potential for generation of particulate matter and decrease safety and air quality concerns.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing access roads shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

As a minimum, plans and specifications shall include:

- Location of road.
- Road width and length with profile and typical cross section(s).
- Location, size, type, length and invert elevations of all required water control structures.
- Design road grades or maximum grades when applicable.
- Type and thickness of surface treatment including any subbase preparation.
- Cut and fill slopes where applicable.
- Drainage areas and structure requirements for culverts, bridges, etc.
- Vegetative requirements that include vegetation materials to be used, establishment rates, and season of planting.
- Safety requirements.
- Location of utilities and notification requirements.

OPERATION AND MAINTENANCE

An operation and maintenance plan will be developed and carried out for the life of the practice:

- Inspect culverts, roadside ditches, water bars, and outlets after each major runoff event and restore flow capacity as needed.
- Minimize the damage to vegetative buffers adjacent to the road when it is necessary to chemically treat the road surface to maintain erosion protection.
- Maintain vegetated areas in adequate cover. Re-seed with adapted plant materials and mow as needed.
- Fill low areas in travel treads and re-grade, as needed, to maintain road cross section.
- Inspect roads with water-bars periodically to ensure proper cross section is available and outlets are stable.
- Conservation practices that limit particulate matter emissions should be incorporated into long-term maintenance plans.

REFERENCES

Florida Drainage Guide
Florida NRCS Conservation Practice Standards
Critical Area Planting, Code 342
Mulching, Code 484
Structure for Water Control, Code 587