

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WATERING FACILITY

(No.)

CODE 614

DEFINITION

A permanent or portable device to provide an adequate amount and quality of drinking water for livestock and/or wildlife.

PURPOSES

To provide access to drinking water for livestock and/or wildlife in order to:

- Meet daily water requirements
- Improve animal distribution

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all land uses where there is a need for new or improved watering facilities for livestock and/or wildlife.

CRITERIA

General Criteria Applicable to All Purposes

Use of this standard will comply with all applicable federal, state, and local laws and regulations.

Design watering facilities with adequate capacity and supply to meet the daily water requirements of the livestock and/or wildlife planned to use the facility. Include the storage volume necessary to provide water between periods of replenishment. Refer to the National Range and Pasture Handbook for guidance on livestock water quantity and quality requirements. For wildlife, base water quantity and quality requirements on targeted species needs.

Locate facilities to promote even grazing distribution and reduce grazing pressure on sensitive areas.

Design the watering facility to provide adequate access to the animals planned to use the facility. Incorporate escape features into the watering facility design where local knowledge and experience indicate that wildlife may be at risk of drowning. See [Water for Wildlife: A Handbook for Ranchers and Range Managers](#) for suggested designs.

Include design elements to meet the specific needs of the animals that are planned to use the watering facility, both livestock and wildlife.

Protect areas around watering facilities where animal concentrations or overflow from the watering facility will cause resource concerns. Use criteria in Indiana (IN) Field Office Technical Guide (FOTG) Standard (561) Heavy Use Area Protection to design the protection.

Install permanent watering facilities on a firm, level foundation that will not settle differentially. Examples of suitable foundation materials are bedrock, compacted gravel and stable, well compacted soils.

Design and install watering facilities to prevent overturning by wind and animals.

Design watering facilities and all valves and controls to withstand or be protected from damage by livestock, wildlife, freezing and ice.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the Field Office Technical Guide for your State.

Construct watering facilities from durable materials that have a life expectancy that meets or exceeds the planned useful life of the installation. Follow appropriate NRCS design procedures for the material being used or industry standards where NRCS standards do not exist.

Design will include appropriate safety features to minimize the hazards of the facility.

The following are guidelines for materials commonly used for watering facilities.

Concrete	4000 psi compressive strength at 28 days, 3 inch thick walls and floor, and minimum 14-gauge welded wire reinforcing
Galvanized Steel	20 gauge thickness
Plastic	Ultraviolet resistance
Fiberglass	Ultraviolet resistance
Large equipment tire	Suitable to perform as intended for life of practice, and free of chemicals

Additional Criteria When Providing Water for Livestock

Use the criteria in IN FOTG Standard (516) Pipeline to design pipe associated with the watering facility and to size the tank with the appropriate pipe size to provide adequate water to meet daily requirements. Include backflow prevention devices on facilities connected to wells, domestic or municipal water systems.

The trough or tank, with delivery, will have a capacity to provide seasonal high daily water requirements of 30 gallons per day per 1000 pounds live weight for the number and species of animals to be supplied.

The site will be naturally adequately drained or drainage measures will be provided.

Nose pumps, when utilized, will be anchored to prevent movement and/or damage by livestock. Nose pumps will be located within 500 feet of the grazing livestock and a maximum number of 25 cattle per pump.

Additional Criteria When Providing Water for Wildlife

This standard will only be used in areas where a lack of adequate water has been identified as a limiting habitat component for the target wildlife species.

Domestic livestock will be excluded from the facility unless specified in an approved grazing plan. See IN FOTG Standards (528) Prescribed Grazing or (472) Access Control for design criteria.

Wildlife watering facilities will be spaced no closer than one-quarter mile from one another or to a dependable quality water supply.

Management measures will be provided to control invasive species.

Disturbed areas will be vegetated according to a revegetation plan, utilizing rates and species from the [IN NRCS Seeding Tool](#), or the [IN Biology Technical Note - Upland Wildlife Habitat](#). Where spillway protection is needed IN FOTG Standard (342) Critical Area Planting will be used.

To maximize wildlife use, watering facilities will either be placed within wooded areas or as close to a field edge as feasible.

The maximum water depth will not exceed 5 feet, but will maintain a depth of at least 2 feet during the driest part of the year.

At least one interior side slope will be 4 horizontal to 1 vertical (4:1) or flatter to allow easy wildlife access. All other interior side slopes on embankment structures will be no steeper than 2:1. Exterior side slopes will be no steeper than 3:1.

Surface runoff basins with earth embankments intended to store more than 3 feet of water against the embankment will be designed according to IN FOTG Standard (378) Pond.

CONSIDERATIONS

Where water is supplied continuously or under pressure to the watering facility, consider the use of automatic water level controls to control the flow of water to the facility and to prevent unnecessary overflows.

Watering facilities often collect debris and algae and should be cleaned on a regular

basis. Consider increasing the pipe sizes for inlets and outlets to reduce the chances of clogging. Maintenance of a watering facility can be made easier by providing a method to completely drain it.

Steep slopes leading to watering facilities can cause erosion problems from over use by animals as well as problems with piping and valves from excess pressure. Choose the location of watering facilities to minimize these problems from steep topography.

To protect bats and other species that access water by skimming across the surface, fencing material should not extend across the water surface. If fencing across the water is necessary, it should be made highly visible by avoiding the use of single wire fences and using fencing materials such as woven wire or by adding streamers or coverings on the fence.

Livestock. Where rotational grazing is practiced or planned, use portable watering when practical that can be relocated to disperse impacts from trampling vegetation. To ensure maximum uniform grazing and waste distribution in the pasture, livestock should not travel more than 600 feet to the watering facility. For lactating animals, watering facilities should be located within 500 feet of where they are grazing. It is ideal for the facility to be in sight from the majority of the grazing area.

Where livestock are traveling more than 1200 feet from where they are grazing and/or where watering facilities are not visible from the grazed area, larger tanks capable of handling a minimum of 1/3 of the entire herd should be utilized providing 15 inches of space per animal for 1/3 of the herd for larger livestock and 10 inches of space per animal for 1/3 of the herd for smaller livestock.

Where possible, a watering facility can provide water for two to four pastures. Watering facilities should be located to aid in additional subdivisions. Gates or gaps can be placed adjacent to the watering facility to allow livestock access to the entire facility from any one paddock at one time.

Wildlife. Consider planting and maintaining vegetation that will provide shade and protective cover over or near the watering facility.

Consider any effects upon natural springs/wetlands and associated unique flora and fauna.

Consider constructing one interior side slope of 6:1 or flatter when reptiles and amphibians are a target species.

Consider adding a dead snag, tree stump or log, 10" or greater in DBH, to each restored basin to provide structure and cover for wildlife and a carbon source for food chain support.

Consider placing rock piles near the water's edge to provide critical habitat for reptile and amphibian species. See 645 - Upland Wildlife Habitat Management - [Wildlife Brush Pile Job Sheet](#) for more details.

PLANS AND SPECIFICATIONS

Plans and specifications will be prepared for the practice site. Plans will include the following:

- Plan view
- Detail drawings showing the facility, necessary appurtenances (such as foundations, pipes and valves) and stabilization of any areas disturbed by the installation of the facility
- Cross section (typical or other)
- Construction specifications describing the installation of the facility

OPERATION AND MAINTENANCE

Provide an O&M plan specific to the type of watering facility to the landowner. As a minimum include the following items in the plan:

- A monitoring schedule to ensure maintenance of adequate inflow and outflow;
- Checking for leaks and repair as necessary;
- If present, the checking of the automatic water level device to ensure proper operation;
- Checking to ensure that adjacent areas are protected against erosion;
- If present, checking to ensure the outlet pipe is freely operating and not causing erosion problems;

- A schedule for periodic cleaning of the facility.

REFERENCES

Brigham, William and Stevenson, Craig, 1997, Wildlife Water Catchment Construction in Nevada, Technical Note 397.

Tsukamoto, George and Stiver, San Juan, 1990, Wildlife water Development, Proceedings of the Wildlife Water Development Symposium, Las Vegas, NV, USDI Bureau of Land Management.

Yoakum, J. and W.P. Dasmann. 1971. Habitat manipulation practices. Ch. 14 in Wildlife Management Techniques, Third Edition. Ed. Robert H. Giles, Jr. Pub. The Wildlife Society. 633 pp.

National Engineering Handbook, Part 650 Engineering Field Handbook, Chapters 5, 11 & 12, USDA Natural Resources Conservation Service.

National Range and Pasture Handbook, Chapter 6, Page 6-12, Table 6-7 & 6-8, USDA-Natural Resources Conservation Service.

National Research Council, 1996 Nutrient Requirements of Domestic Animals, National Academy Press.

Taylor, D. and Tuttle, M 2007, Water for Wildlife: A Handbook for Ranchers and Range Managers, Bat Conservation International.

<http://www.batcon.org/news2/pdf/bciwaterforwildlife.pdf>